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An insight into the evolution of mutual understanding in teamwork

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Table of contents volume 1

Abstract 23

Chapter 1: Introduction **25**

1.1 Research aim 25

1.2 Research objectives 25

1.3 Motivations and background: What is 'Mutual understanding?' 26

1.3.1 One plausible definition from the literature 26

1.3.2 The process of developing mutual understanding 27

1.3.3 Mutual understanding in the context of teamwork 28

1.3.4 Dispersed teams 29

1.4 Contributions 30

1.5 Methodology 31

1.6 Outline of the thesis 31

1.7 Conclusion 33

Chapter 2: Literature review **35**

2.1 What is 'Mutual understanding?' 35

2.1.1 How is 'mutual understanding' referred to in different sets of literature? 36

2.1.1.1 Learning 36

2.1.1.2 Spoken dialogue systems 39

2.1.1.3 Concurrent engineering 40

2.1.1.4 Video, e-mail and teleconference based interactions 41

2.2 What ingredients are required for 'mutual understanding?' 42

2.2.1 Common ground 42

2.2.1.1 Mutual knowledge 43

2.2.1.2 Mutual belief 43

2.2.1.3 Mutual suppositions 45

2.2.2 Grounding 46

2.2.2.1 Looking more closely at evidence of agreements 48

2.2.2.2 Looking more closely at evidence of disagreements 52

2.2.2.3 Looking more closely at evidence of holding a neutral position 54

2.2.2.4 Grounding constraints 54

2.2.3 Repairs 55

2.3 How can mutual understanding be monitored? 57

2.4 Examining mutual understanding in the context of teamwork 58

2.4.1 Defining teamwork 58

2.4.1.1 Defining multidisciplinary teamwork 60

2.4.2 Team dynamics and roles 61

2.4.3 Challenges of teamwork 65

2.4.4 Team member interactions 67

2.4.4.1 Face-to-face interactions 68

2.4.4.2 E-mail interactions 69
2.4.4.3 Comparing face-to-face and e-mail interactions 71
2.4.4.4 Supporting interactions 73
2.5 Conclusion 73

Chapter 3: Defining and monitoring mutual understanding **76**
3.1 Reviewing existing mutual understanding definitions 77
3.2 Proposed re-definition for mutual understanding 78
3.2.1 Re-definition for mutual understanding 78
3.2.1.1 Using empirical data to test the re-definition for mutual understanding 78
3.2.1.2 Comparing the re-definition for mutual understanding with existing literature 82
3.2.2.2.1 Comparing similarities between the re-definition for mutual understanding and Brennan's (1990) definitions 82
3.2.1.2.2 Comparing differences between the re-definition for mutual understanding and Brennan's (1990) definitions 83
3.2.2 Proposed re-definitions for mutual understanding ingredients 86
3.2.2.1 Re-definition for Common Ground 86
3.2.2.2 Re-definition for Mutual Belief 90
3.2.2.3 Re-definition for Grounding 91
3.2.2.4 Re-definition for Repairing 93
3.3 Monitoring mutual understanding 94
3.3.1 Characterising states and sub states for face-to-face interactions 99
3.3.1.1 Examining related literature 100
3.3.1.2 Examining empirical data 101
3.3.1.3 Summary of how the states and sub-states were characterised using literature and empirical data 105
3.3.1.4 Overview of how the states and sub-states were characterised 107
3.3.2 Characterising states for E-mail interactions 108
3.4 Conclusion 112

Chapter 4: Methodology **114**
4.1 Using a case study method to collect empirical data 114
4.1.1 Case study overview 115
4.1.1.1 Aims, objectives, innovations and milestones 115
4.1.1.2 Summary of partner contributions to the project 117
4.1.1.3 Experiences and roles 118
4.2 Data collection 119
4.2.1. Observational data 119
4.2.2 Sending and receiving e-mail messages 121
4.2.3 Interview data 121
4.2.4 Questionnaire data 123

4.2.5 Other documentation 125
4.3 Data analysis 125
4.3.1 Observational data 125
4.3.1.1 Identifying discourse chunks 126
4.3.1.1.1 Applying states and sub-states to discourse chunks 128
4.3.2 Written data (E-mail messages) 131
4.3.2.1 Identifying textual chunks 131
4.3.2.1.1 Applying states to textual chunks 131
4.3.3 Applying categories or aspects by which group members update their mutual understanding 132
4.3.4 Searching for evidence of five types of problems experienced by dispersed teams 134
4.4 Inter rater reliability 131
4.4.1 Identifying grounding evidence and applying the characterised states and sub-states using transcript data 135
4.4.2 Applying characterised states using e-mail messages 136
4.4.3 Applying Mulder's categories or aspects 136
4.4.4 Seeking evidence for Cramton's reported problems 137
4.5 Conclusion 137

Chapter 5: Monitoring evolution of mutual understanding 139
5.1 Data collection results 139
5.1.1 Obtaining informed consent 139
5.1.2 Questionnaire to identify the multidisciplinary nature of the project team 139
5.1.3 Telephone interview to find out team member experiences of working in this project 140
5.2 Results for monitoring the evolution of mutual understanding 141
5.2.1 Work package 1: Usability requirements of accessibility and web authoring tools 143
5.2.2 Work package 2: Plugins for speech recognition and synthestis integration, with the possibility of adjusting the speed of the synthisiser 155
5.2.3 Work package 3: Tool development 160
5.2.4 Work package 4: Creation of an accessible e-learning portal 160
5.2.5 Work package 5: Evaluation 161
5.2.6 Work package 6: Dissemination, Standardisation and Exploitation 162
5.2.7 Work package 7: Project management 163
5.2.8 Other 163
5.2.9 Summary 164
5.2.10 Overview of the method which evolved from the process to monitor mutual understanding 164
5.2.10.1 Monitoring mutual understanding using dialogue based data 167
5.2.10.2 Monitoring mutual understanding using e-mail data 167
5.2.11 Transitions between different states of mutual understanding. 170
5.2.11.1 Work package 1 173

5.2.11.2 Work package 2 173
5.2.11.3 Work package 3 175
5.2.11.4 Work package 4 176
5.2.11.5 Work package 5 177
5.2.11.6 Work package 6 178
5.2.11.7 Work package 7 179
5.2.11.7.1 FTP site 180
5.2.11.7.2 Project logo 181
5.2.11.7.3 Reminder of roles in the project 182
5.2.11.7.4 Communication amongst the team 182
5.2.11.7.5 Project website address 183
5.2.11.7.6 Project webpage 184
5.2.11.7.7 Project mailing list address 184
5.2.11.7.8 Reporting 185
5.2.11.7.9 Review 186
5.2.11.7.10 Special report for the review 187
5.2.11.7.11 1st quarterly report 188
5.2.11.7.12 2nd quarterly report 188
5.2.11.7.13 3rd quarterly report 189
5.2.11.7.14 4th quarterly report 190
5.2.11.7.15 Annex number 1 190
5.2.11.7.16 Annex number 2 191
5.2.11.7.17 CPF 191
5.2.11.7.18 Advance payment 193
5.2.11.7.19 Cost statements 193
5.2.11.7.20 Bank guarantee 193
5.2.11.7.21 Change of name for partner 8 194
5.2.11.7.22 Change of name for partner 1 194
5.2.11.7.23 Change of name for partner 3 195
5.2.11.7.24 No change in the contract 195
5.2.11.7.25 Change in the project's start date 196
5.2.11.7.26 Change in consumables 196
5.2.11.7.27 Signing the amendment 197
5.2.11.7.28 Extension for the project 198
5.2.11.7.29 Partner 1 signing amendments 198
5.2.11.7.30 Next meeting 199
5.2.11.7.31 Meeting minutes 200
5.2.11.8 Other 200
5.2.11.8.1 Availability 200
5.2.11.8.2 Glossary 201
5.2.11.9 Summary 202
5.2.1.2 Qualitative differences in types of understanding. 203

5.2.12.1 Work package 2 205
5.2.12.2 Work package 3 206
5.2.12. 3 Work package 4 208
5.2.12.4 Summary 210
5.3 Conclusion 210

Chapter 6: Other interesting analyses **212**
6.1 Group development phases 212
6.1.1 Work package 1 213
6.1.2 Work package 2 214
6.1.3 Work package 3 215
6.1.4 Work package 4 216
6.1.5 Work package 5 217
6.1.6 Work package 6 218
6.1.7 Work package 7 219
6.1.8 Other 220
6.1.9 Summary 220
6.2 Predicting differences in different meetings 221
6.2.1 Before approval 221
6.2.2 After project approval 222
6.3 Examining behaviours in different meetings 222
6.4 Examining time 225
6.4.1 Work package 1 225
6.4.2 Work package 2 227
6.4.3 Work package 3 228
6.4.4 Work package 4 228
6.4. 5 Work package 5 228
6.4.6 Work package 6 228
6.4.7 Work package 7 229
6.4.8 Other 228
6.4.9 Summary 229
6.5 Focussing on mutual understanding between different sets of stakeholders in a multidisciplinary team 221
6.5.1 Displaying evidence of altered belief 234
6.5.2 No growth in mutual understanding 236
6.5.3 Summary 238
6.5.4 Overview of working in a multidisciplinary team 238
6.6 Having blind and visually impaired team members in the case study 239
6.6.1 To communicate with the team 239
6.6.1.1 Clicking fingers 241
6.6.1.2 Raising the hand 241
6.6.1.3 Tapping on the table 242

6.6.1.4 Document formats 242
6.6.1.5 Using Braille/talking about Braille 242
6.6.1.6 Viewing information 244
6.6.1.7 Interacting with technology/self-testing prototypes 245
6.6.1.8 Reactions to the project 246
6.6.1.9 Comments on the development work 248
6.6.1.10 Supporting materials 250
6.6.1.10.1 Sharing information on conferences/events 252
6.6.1.10.2 Communicating by e-mail – sending comments 253
6.6.1.10.3 Communicating by e-mail – answering questions 254
6.6.1.10.4 Communicating by e-mail – supporting material 254
6.6.1.10.5 Communicating by e-mail – sharing information on conferences/events 256
6.6.1.10.6 Communicating by e-mail – placing the portal online 256
6.7 Mulder's categories or aspects 256
6.8 Cramton's problems 259
6.8.1 Work package 1 259
6.8.2 Work package 2 259
6.8.3 Work package 3 260
6.8.4 Work package 4 261
6.8.5 Work package 5 262
6.8.6 Work package 6 263
6.8.7 Work package 7 264
6.8.8 Other 265
6.8.9 Summary 266
6.9 Conclusion 266

Chapter 7: Insights and patterns 266
7.1 Analysis of the insights 266
7.1.1 Face-to-face meetings 267
7.1.1.1 Summary of states and sub-states 267
7.1.2 E-mail messages sent to the mailing list 269
7.1.2.1 Summary of states 269
7.1.3 Observing the aims and objectives of the project 270
7.1.4 Group development phases 271
7.1.5 Time 271
7.1.6 Working in a multidisciplinary team 271
7.1.7 Mulder's categories or aspects 271
7.1.8 Cramton's problems 271
7.1.9 Inter rater reliability 272

7.1.9.1 Identifying grounding evidence and applying the characterised states and sub-states using transcript data 272
7.1.9.2 Applying characterised states using e-mail messages 273
7.1.9.3 Applying Mulder's categories or aspects 273
7.1.9.4 Seeking evidence for Cramton's reported problems 274
7.2 Examining patterns 274
7.2.1 Looking at the phases in relation to time 275
7.2.1.1 Work package 1 275
7.2.1.2 Work package 2 275
7.2.1.3 Work package 3 276
7.2.1.4 Work package 4 276
7.2.1.5 Work package 5 277
7.2.1.6 Work package 6 277
7.2.1.7 Work package 7 2
7.2.1.8 Other 269
7.2.1.9 Summary 269
7.2.2 Looking at Cramton's problems in relation to the phases 271
7.2.2.1 Work package 1 272
7.2.2.2 Work package 2 273
7.2.2.3 Work package 3 275
7.2.2.4 Work package 4 277
7.2.2.5 Work package 5 277
7.2.2.6 Work package 6 278
7.2.2.7 Work package 7 278
7.2.2.8 Summary 278
7.2.3 Looking at Cramton's problems in relation to time 280
7.2.3.1 Work package 1 281
7.2.3.2 Work package 2 286
7.2.3.3 Work package 3 288
7.2.3.4 Work package 4 288
7.2.3.5 Work package 5 290
7.2.3.6 Work package 6 290
7.2.3.7 Work package 7 291
7.2.3.8 Summary 292
7.2.4 Looking at no growth in mutual understanding in relation to the phases 295
7.2.4.1 Work package 1 295
7.2.4.2 Work package 2 286
7.2.4.3 Work package 3 286
7.2.4.4 Work packages 4 290
7.2.4.5 Work packages 5 290
7.2.4.6 Work package 6 291
7.2.4.7 Work package 7 292

7.2.4.8 Summary 295
7.2.5 Looking at no growth in mutual understanding in relation to time 302
7.2.5.1 Work package 1 302
7.2.5.2 Work package 2 302
7.2.5.3 Work package 3 302
7.2.5.4 Work package 4 303
7.2.5.5 Work package 5 303
7.2.5.6 Work package 6 303
7.2.5.7 Work package 7 303
7.2.5.8 Summary 303
7.3 Conclusion 305

Chapter 8: Guidelines **305**
8.1 Method for proposing guidelines to promote mutual understanding during face-to-face interactions 305
8.2 Method for proposing guidelines to promote mutual understanding after face-to-face interactions using e-mail 308
8.3 Proposing guidelines 308
8.3.1 Guidelines for e-mail interactions 310
8.3.1.1 Guideline B1: Circulating a draft agenda 312
8.3.1.2 Guideline B2: Back up plans for not being able to participate during the meeting 312
8.3.1.3 Guideline B3: Sending documentation(s) before a meeting, to be referred to during the meeting 313
8.3.2 Guidelines for face-to-face interactions 314
8.3.2.1 Guideline D1: Reference to terms, which are used 316
8.3.2.2 Guideline D2: Communicating with the team 318
8.3.2.3 Guideline D3: Establishing a system to identify who would like to speak next 318
8.3.2.4 Guideline D4: Discussing document formats 321
8.3.2.5 Guideline D5: Developing presentations and giving demonstrations 322
8.3.2.6 Guideline D6: Sharing information by using examples/showing demonstrations 323
8.3.2.7 Guideline D7: Making explicit requests 323
8.3.2.8 Guideline D8: Informing on changes 335
8.3.2.9 Guideline D9: Making decisions 336
8.3.2.10 Guideline D10: Establishing regular reporting periods 337
8.3.2.11 Guideline D11: Summarising information 338
8.3.2.12 Guideline D12: Updating on progress 339
8.3.2.13 Guideline D13: Consulting the agenda once everyone has arrived to the meeting 341
8.3.2.14 Guideline D14: Structuring the meeting 342

8.3.2.15 Guideline D15: Making presentation preparations
8.3.2.16 Guideline D16: Selecting a date for a next meeting 343
8.3.2.17 Guideline D17: Encouraging self testing 344
8.3.3 Guidelines for e-mail interactions after a face-to-face meeting 345
8.3.3.1 Guideline A1: Circulating information to the entire team 347
8.3.3.2 Guideline A2: Monitoring reporting periods to the team 348
8.3.3.3 Guideline A3: Keeping team members up to date with whom they are working with 351
8.3.3.4 Guideline A4: Project glossary 352
8.3.3.5 Guideline A5: Informing with your plans before starting on work/giving a summary of what has been achieved 355
8.3.3.6 Guideline A6: Starting on work earlier than planned 356
8.3.3.7 Guideline A7: Circulating draft documents 357
8.3.3.8 Guideline A8: Summarising changes 359
8.3.3.9 Guideline A9: Sharing relevant information to members of the team 361
8.3.3.10 Guideline A10: Sharing information with people outside of the team 362
8.3.3.11 Guideline A11: Producing reports 363
8.3.3.12 Guideline A12: Document formats 365
8.3.3.13 Guideline A13: Notification of new documents 366
8.3.3.14 Guideline A14: Circulating meeting minutes 367
8.3.3.15 Guideline A15: Informing on non-working periods 369
8.3.3.16 Guideline A16: Next meeting 370
8.3.3.17 Guideline A17: Encouraging self-testing 393
8.3.3.18 Guideline A18: Storing relevant documentation 374
8.4 Conclusion 376

Chapter 9: Guideline validation **378**

9.1 Overview of the validation exercise 378
9.1.1 Discussion of alternative evaluation methods considered 379
9.1.1.1 Contacting team work experts 379
9.1.1.2 Finding another team to repeat the process 379
9.1.1.3 Asking the European research project team which was the case study for this investigation 380
9.1.1.4 Selecting an identical project team 380
9.1.1.5 Items considered for the validation exercise but not used 380
9.1.2 Informed consent 381
9.1.3 Project team 381
9.1.3.1 Multidisciplinary team 383
9.2 Results 384
9.2.1 Face-to-face meeting (1) 384
9.2.1.1 First reactions 385

9.2.1.2 Expectations of team members category 385
9.2.1.3 Planning and structuring category 388
9.2.1.4 Using technology category 389
9.2.1.5 Goals of the meeting and contributions from team members 389
9.2.1.6 Rating the proposed guidelines 389
9.2.1.6.1 Rating the overall usefulness of the guidelines to the situation and their clarity 390
9.2.2 E-mail interactions 391
9.2.2.1 First reactions 392
9.2.2.2 Expectations of team members category 393
9.2.2.3 Planning and structuring category 393
9.2.2.4 Using technology category 395
9.2.2.5 Rating the overall usefulness of the guidelines to their situation and their clarity 397
9.2.3 Face-to-face meeting (2) 398
9.2.3.1 Expectations of team members category 400
9.2.3.2 Planning and structuring category 401
9.2.3.3 Technology category 402
9.2.3.4 Goals of the meeting and contributions from team members 403
9.2.3.5 Rating the overall usefulness of the guidelines to their situation and their clarity 404
9.3 Discussion 404
9.3.1 Comparing the proposed guidelines with existing guidelines 404
9.3.1.1 Proposed guidelines to put into practice before a face-to-face meeting 405
9.3.1.2 Proposed guidelines to put into practice during a face-to-face meeting 405
9.3.1.3 Proposed guidelines to put into practice after a face-to-face meeting 409
9.3.2 Guidelines put into practice by team members and observed put into practice by other team members 411
9.3.2.1 Meeting one, expectations of team members category 411
9.3.2.2 Meeting one, planning and structuring category 414
9.3.2.3 After meeting one, expectations of team members category 417
9.3.2.4 After meeting one, planning and structuring category 417
9.3.2.5 After meeting one, technology category 418
9.3.2.6 Meeting two, expectations of team members category 419
9.3.2.7 Meeting two, planning and structuring category 421
9.3.3 Promoting mutual understanding in teamwork 422
9.4 Conclusion 422

Chapter 10: Conclusion and Future work **425**

10.1 Thesis summary 426
10.2 Contributions of this research 427

10.2.1 Key contributions 427
10.2.1.1 Definition for mutual understanding and a characterisation of how mutual understanding can be monitored 428
10.2.1.2 Rich insights into the evolution of mutual understanding in a multidisciplinary team 429
10.2.1.3 Proposing and validating guidelines 429
10.2.2 Secondary contribution 431
10.3 Limitations to this research 431
10.3.1 Data collection 434
10.3.2 Data analysis 437
10.3.3 Validation of the proposed guidelines 438
10.4 Future work 438
10.4.1 Looking at other media 439
10.4.2 Selecting a different team 439
10.4.3 Focus of analysis 439
10.4.4 Producing taxonomies 439
10.4.5 Producing requirements for designers and developers in CSCW 440
10.5 Conclusion 440

References **441**

Appendices
A: Informed consent form for case study project team 451
B: Final telephone interview questions 452
C: Pilot questions for the telephone interview 456
D: Final version of questionnaire to identify disciplinary background for the case study project team 461
E: Pilot version of questionnaire to identify the disciplinary background of the case study project team 465
F: Multidisciplinary team profile 470
G: 17/12/01 face-to-face meeting transcript 478
18/12/01 face-to-face meeting transcript 493
H: E-mail messages sent to the team after the 1st face-to-face meeting 512
I: 14/3/02 face-to-face meeting transcript 516
15/3/02 face-to-face meeting transcript 562
J: E-mail messages sent to the team after the 2nd face-to-face meeting 579

List of tables volume 1

Table 2.1: Grice's four maxim's 43

Table 2.2: Traum and Allen's seven acts to model the grounding process 47

Table 2.3: Traum and Allen's seven states a discourse unit can be in 47

Table 2.4: Examples of preceding positive and negative utterances and listener responses 49

Table 2.5: Preceding utterances with four different listener responses 49

Table 2.6: Four dialog acts and evidences for each act 51

Table 2.7: Three types of positive and negative preceding utterances with listener responses 53

Table 2.8: *'No'* in relation to mood and polarity of preceding utterances 53

Table 2.9: Clark and Brennan's eight constraints for grounding 54

Table 2.10: Clark and Brennan's chart of seven media with associated constraints for grounding identified 55

Table 2.11: Five phases of Tuckman's group development model 61

Table 2.12: Comparing functional and non-functional teams 62

Table 2.13: Cramton's five problems in dispersed collaboration 66

Table 2.14: Five factors affecting the success of meetings 69

Table 3.1: Annotated transcript for theme Change in agenda 79

Table 3.2: Summary of interactions for theme Change in agenda 81

Table 3.3: Five states and sub-states characterised to monitor grounding in face-to-face interactions 96

Table 3.4: Transcript extract to show differences between e-mail interactions 97

Table 3.5: E-mail message samples to show differences between face-to-face interactions 98

Table 3.6: Example of a negotiation found in the empirical data 99

Table 3.7: Annotated transcript showing grounding evidences in discourse chunk Reporting 102

Table 3.8: Identifying additional grounding evidences in discourse chunk Demonstration of screen reader use (Jaws) by a blind person using the Internet 102

Table 3.9: Illustration of altered belief states in discourse chunk Reporting 103

Table 3.10: Summary of the relevant literature and empirical data examined 104

Table 3.11: States and sub-states characterised from the grounding evidences found in the empirical data 107

Table 3.12: Seven states characterised to monitor grounding evidence in e-mail interactions 109

Table 3.13: Four states to characterise the receiver of an e-mail message 109

Table 3.14: Example of a message sent with no subject heading 110

Table 3.15: Example of a second message sent with no subject heading 110

Table 3.16: Example of a message sent with one subject heading but the message relates to more than one heading 110

Table 3.17: Example of a second message sent with one subject heading but the message relates to more than one heading 111

Table 4.1: Identifying the nine partners that are involved in the project 117

Table 4.2: Work package leaders and contributors 117

Table 4.3: Experiences of areas relevant to this project at partner level 118
Table 4.4: Roles of each partner in the project 118
Table 4.5: Characterisation of eight disciplines to establish the multidisciplinary nature of the case study project team 124
Table 4.6: Applying states for e-mail interactions 131
Table 4.7: Specific coding for task/domain, social interaction, process and technology 133
Table 4.8: Identifying potential evidence of Mulder's categories or aspects in discourse chunk Project Logo 133
Table 4.9: Cramton's (2001) Five problems in dispersed collaboration 134
Table 4.10: Identifying potential evidence of Cramton's problem, Difficulty in communicating the salience of information in discourse chunk Project logo 135
Table 5.1: Discourse and textual chunk themes for work package 1 143
Table 5.2: Evidence of sub-states for Overview of access technology and some of the issues and opportunities faced by visually impaired people using the Internet 144
Table 5.3: Evidence of sub-states for Demonstration of screen reader use (Jaws) by a blind person using the Internet 144
Table 5.4: Evidence of sub-states for Change to the agenda 148
Table 5.5: Evidence of sub-states for Overview of the market for access technology 146
Table 5.6: Evidence of sub-states for Discussion 147
Table 5.7: Evidence of sub-states for Partner 8 on work package 1 147
Table 5.8: Evidence of sub-states for Partner 2 on work packages 2 and 6 148
Table 5.9: Evidence of sub-states for Partner 5 149
Table 5.10: Evidence of sub-states for Developing a plan of future work 149
Table 5.11: E-mail messages looking at the textual chunk Detailed work plan for the next 3-months (typed up plan discussed during the second day of the face-to-face meeting) 150
Table 5.12: E-mail messages looking at the textual chunk Authoring tool accessibility guidelines 150
Table 5.13: E-mail messages looking at the textual chunk Report on problems encountered by visually impaired people on websites 150
Table 5.14: E-mail messages looking at the textual chunk E-learning 151
Table 5.15: E-mail messages looking at the textual chunk Protocol for evaluation for e-learning 151
Table 5.16: E-mail messages looking at the textual chunk Questionnaire on unmet learning needs 151
Table 5.17: E-mail messages looking at the textual chunk Dreamweaver 152
Table 5.18: Evidence of sub-states for Informing of late arrival 152
Table 5.19: Evidence of sub-states for the Review of work package 1, questionnaire data gathered 152
Table 5.20: Evidence of sub-states for Overview of the evaluation session 153
Table 5.21: Evidence of sub-states for Work package 1, e-learning presentation 153
Table 5.22: Evidence of sub-states for Overview of the circulated report 154
Table 5.23: E-mail messages looking at the textual chunk E-learning 154
Table 5.24: E-mail messages looking at the textual chunk E-learning problems 154
Table 5.25: Evidence of sub-states for Discussion of the tool 155
Table 5.26: Evidence of sub-states for Presentation on work package 1, results for evaluation study 155

Table 5.27: Evidence of sub-states for Presentation on work package 1 155
Table 5.28: Evidence of sub-states for Discussion of issues emerging from presentation on work package 1 156
Table 5.29: Evidence of sub-states for Presentation on work package 1 – Discussing plans for deliverables in work package 1 157
Table 5.30: Evidence of sub-states for Summary of documents to be sent 157
Table 5.31: E-mail messages looking at the textual chunk Unmet learning needs questionnaire 157
Table 5.32: E-mail messages looking at the textual chunk D1.1 Manual for accessible design 157
Table 5.33: E-mail messages looking at the textual chunk Revised work plan for work packages 1 and 5 157
Table 5.34: E-mail messages looking at the textual chunk Chapter 3 158
Table 5.35: E-mail messages looking at the textual chunk Review of VoiceXML tools 158
Table 5.36: Evidence of sub-states for Review of work package 1 158
Table 5.37: E-mail messages looking at the textual chunk News 159
Table 5.38: Illustration of altered mutual beliefs 174
Table 5.39: Summary of work package 1 by type Table 5.40: Summary of work package 2 by type 174
Table 5.40: Summary of work package 2 by type 176
Table 5.41: Summary of work package 3 by type 177
Table 5.42: Summary of work package 4 situations by type 178
Table 5.43: Summary of work package 5 by type 179
Table 5.44: Summary of work package 6 by type 180
Table 5.45: Summary of work package 7 - theme FTP site by type 181
Table 5.46: Summary of work package 7 - theme project logo by type 182
Table 5.47: Summary of work package 7 - theme reminder of roles in the project by type 182
Table 5.48: Summary of work package 7 – communication amongst the team by type 183
Table 5.49: Summary of work package 7 - theme project website address by type 183
Table 5.50: Summary of work package 7- theme project webpage by type 184
Table 5.51: Summary of work package 7 - theme project mailing list address by type 185
Table 5.52: Summary of work package 7 - theme reporting by type 185
Table 5.53: Summary of work package 7- theme review by type 186
Table 5.54: Summary of work package 7 - theme special report for the review by type 187
Table 5.55: Summary of work package 7 - theme 1st quarterly report by type 187
Table 5.56: Summary of work package 7 - theme 2nd quarterly report by type 188
Table 5.57: Summary of work package 7 - theme 3rd quarterly report by type 189
Table 5.58: Summary of work package 7- theme 4th quarterly report by type 189
Table 5.59: Summary of work package 7 - theme annex number 1 by type 190
Table 5.60 : Summary of work package 7 - theme annex number 2 by type 191
Table 5.61: Summary of work package 7 – theme CPF by type 191
Table 5.62: Summary of work package 7- theme advance payment by type 192
Table 5.63: Summary of work package 7 - theme cost statements by type 193
Table 5.64: Summary of work package 7 - theme bank guarantees by type 193

Table 5.65: Summary of work package 7 - theme change of name for partner 8 by type 194
Table 5.66: Summary of work package 7 situations for theme change of name for partner 1 by type 194
Table 5.67: Summary of work package 7 - theme change of name for partner 3 by type 195
Table 5.68: Summary of work package 7 - theme no change in the contract by type 195
Table 5.69: Summary of work package 7 - theme change in the project's start date by type 196
Table 5.70: Summary of work package 7 - theme change in consumables by type 196
Table 5.71: Summary of work package 7 - theme signing the amendment by type 197
Table 5.72: Summary of work package 7 - theme extension for the project by type 198
Table 5.73: Summary of work package 7- theme partner 1 signing amendments by type 199
Table 5.74: Summary of work package 7- theme next meeting by type 200
Table 5.75: Summary of work package 7 - theme meeting minutes by type 200
Table 5.76: Summary of category other - theme availability by type 201
Table 5.77: Summary of category other - theme glossary by type 195
Table 6.1: Identifying the stakeholders in the project team 231
Table 6.2: Summary of attendance to the face-to-face meetings for blind and visually impaired team members 239
Table 6.3: Mulder's four categories or aspects by which group members update their mutual understanding 256
Table 6.4: Mulder's specific coding used for the four categories or aspects 257
Table 6.5: Cramton's five problems in dispersed collaboration 259
Table 6.6: Cramton's potential problems in work package 1 259
Table 6.7: Cramton's potential problems in work package 2 259
Table 6.8: Cramton's potential problems in work package 3 261
Table 6.9: Cramton's potential problems in work package 4 262
Table 6.10: Cramton's potential problems in work package 5 263
Table 6.11: Cramton's potential problems in work package 6 263
Table 6.12: Cramton's potential problems in work package 7 264
Table 6.13: Cramton's potential problems in category other 265
Table 7.1: Potential problems of work package 1 and the phases 266
Table 7.2: Potential problems of work package 2 and the phases 275
Table 7.3: Potential problems of work package 3 and the phases 275
Table 7.4: Potential problems of work package 4 and the phases 276
Table 7.5: Potential problems of work package 5 and the phases 276
Table 7.6: Potential problems of work package 6 and the phases 277
Table 7.7: Potential problems of work package 7 and the phases 277
Table 7.8: No growth situations and phases for work package 1 277
Table 7.9: No growth situations and phases for work package 2 277
Table 7.10: No growth situations and phases for work package 3 278
Table 7.11: No growth situations and phases for work package 4 279
Table 7.12: No growth situations and phases for work package 6 280
Table 7.13: No growth situations and phases for work package 7 280

Table 7.14: No growth situations and time for work package 1 280
Table 7.15: No growth situations and time for work package 2 280
Table 7.16: No growth situations and time for work package 3 280
Table 7.17: No growth situations and time for work package 4 280
Table 7.18: No growth situations and time for work package 6 280
Table 7.19: No growth situations and time for work package 7 280
Table 8.1: Mulder's categories or aspects 308
Table 8.2: Three proposed guidelines in the planning and structuring category or aspect 313
Table 8.3: Linking sources of empirical data to guideline B1: Circulating a draft agenda 316
Table 8.4: Linking sources of empirical data to guideline B2: Back up plans for not being able to participate during a meeting 318
Table 8.5: Seventeen guidelines to promote mutual understanding during face-to-face interactions 323
Table 8.6: Linking sources of empirical data to guideline D1: Reference to terms which are used 323
Table 8.7: Eighteen guidelines to promote mutual understanding after face-to-face interactions using e-mail 347
Table 8.8: Linking sources of empirical data to guideline A1: Circulating information to the entire team 348
Table 8.9: Linking sources of empirical data to guideline A4: Project glossary 352
Table 9.1: Similarities between the two teams 381
Table 9.2 Differences between the two teams 382
Table 9.3 Categories of eight disciplines and subject areas 383
Table 9.4: Disciplinary background of team members 383
Table 9.5: Discipline and Subject Area contributions to the first meeting 384
Table 9.6: First reactions on seeing the proposed guidelines for face-to-face interactions, meeting one 385
Table 9.7: Twelve guidelines for expectation of team members 386
Table 9.8: Summary of why guidelines were not put into practice for the expectations of team members category, meeting one 386
Table 9.9: Four guidelines for planning and structuring activities 388
Table 9.10 Summary of why guidelines were not put into practice for the planning and structuring activities category, meeting one 388
Table 9.11: One guideline for using technology 391
Table 9.12: Team members perceived contributions to the first meeting 391
Table 9.13: Opinions of team members when asked to justify the usefulness of the guidelines to their situation 391
Table 9.14: Team member experiences of putting into practice the 17 guidelines, meeting one 392
Table 9.15: Summary of e-mail messages sent to the team after the first meeting, but before the second meeting took place 393
Table 9.16: First reactions on seeing the proposed guidelines for e-mail interactions 393
Table 9.17: Thirteen guidelines for expectations of team members 394
Table 9.18: Summary of why guidelines were not put into practice for the expectations of team members category, e-mail interactions 395

Table 9.19: Six guidelines for planning and structuring activities 395
Table 9.20: Summary of why guidelines were not put into practice for the planning and structuring activities category, e-mail interactions 396
Table 9.21: Two guidelines for using technology 397
Table 9.22: Summary of why guidelines were not put into practice for the using technology category, e-mail interactions 397
Table 9.23: Opinions of the team members when asked to justify the usefulness of the guidelines to their situation, e-mail interactions 398
Table 9.24: Disciplinary background for the assessor who was not present at the first meeting 399
Table 9.25: Discipline and Subject Area contributions to the second meeting 399
Table 9.26: Twelve guidelines for expectations of team members 400
Table 9.27: Summary of why guidelines were not put into practice for the expectations of team members category, meeting two 401
Table 9.28: Four guidelines for planning and structuring activities 401
Table 9.29: Summary of why guidelines were not put into practice for the planning and structuring activities category, meeting two 402
Table 9.30: One guideline for using technology 402
Table 9.31: Team members perceived contributions to the second meeting 403
Table 9.32: Opinions of team members when asked to justify the usefulness of the guidelines to their situation, meeting two 404
Table 9.33: Three guidelines for e-mail interactions before a face-to-face meeting 405
Table 9.34: Seventeen guidelines for face-to-face interactions 409
Table 9.35: Eighteen guidelines for e-mail interactions in between a face-to-face meeting 411

Figure list volume 1

Figure 1.1: Overview of the thesis 33

Figure 2.1: Rogers' Venn diagram of mutual understanding 36

Figure 2.2: Idealised stages of group development 62

Figure 2.3: Stages of group development in practice 63

Figure 3.1: Sum of mutual understanding for triadic interactions 78

Figure 3.2: Graphical representation for mutual understanding and ingredients for mutual understanding 86

Figure 3.3: Graphical representation for mutual understanding and ingredients for mutual understanding, including a closer look at the states and sub-states to monitor evidence of grounding 97

Figure 5.1: Summary of all sub-states for the seven work packages and category other 165

Figure 5.2: Summary of states for e-mail interactions following a face-to-face meeting 167

Figure 6.1: Graphical representation of Tuckman's phases in work package 1 213

Figure 6.2: Graphical representation of Tuckman's phases in work package 2 214

Figure 6.3: Graphical representation of Tuckman's phases in work package 3 215

Figure 6.4: Graphical representation of Tuckman's phases in work package 4 216

Figure 6.5: Graphical representation of Tuckman's phases in work package 5 217

Figure 6.6: Graphical representation of Tuckman's phases in work package 6 218

Figure 6.7: Graphical representation of Tuckman's phases in work package 7 219

Figure 6.8: Graphical representation of Tuckman's phases in category other 220

Figure 6.9: Graphical representation of different timescales for discourse and textual chunks in work package 1 225

Figure 6.10: Graphical representation of different timescales for discourse and textual chunks in work package 2 227

Figure 6.11: Graphical representation of different timescales for discourse and textual chunks in work package 3 228

Figure 6.12: Graphical representation of different timescales for discourse and textual chunks in work package 4 227

Figure 6.13: Graphical representation of different timescale for discourse and textual chunks in work package 5 228

Figure 6.14: Graphical representation of different timescales for discourse and textual chunks in work package 6 229

Figure 6.15: Graphical representation of different timescales for discourse and textual chunks in work package 7 230

Figure 6.16: Graphical representation of different timescales for discourse and textual chunks in category other 230

Figure 6.17: Graphical representations of Mulder's different categories or aspects in work packages 1-7 and category other 258

Figure 7.1: Work package 1 examined in relation to time 275

Figure 7.2: Work package 2 examined in relation to time 275
Figure 7.3: Work package 3 examined in relation to time 276
Figure 7.4: Work package 4 examined in relation to time 277
Figure 7.5: Work package 5 examined in relation to time 277
Figure 7.6: Work package 6 examined in relation to time 278
Figure 7.7: Work package 7 examined in relation to time 278
Figure 7.8: Category other examined in relation to time 280
Figure 7.9: Cramton's problems per work package in relation to the phases 282
Figure 8.1: Guideline template 312
Figure 9.1: Team members putting into practice guidelines in the expectation of team members category, meeting one 386
Figure 9.2: Observing other team members put into practice guidelines in the expectations of team members category, meeting one 387
Figure 9.3: Team members putting into practice guidelines in the planning and structuring activities category, meeting one 388
Figure 9.4: Observing other team members putting into practice guidelines in the planning and structuring activities category, meeting one 388
Figure 9.5: Team members putting into practice guidelines in the expectations of team members category, e-mail interactions 394
Figure 9.6: Observing other team members putting into practice guidelines in the expectations of team members category, e-mail interactions 395
Figure 9.7: Team members putting into practice guidelines in the planning and structuring activities category, e-mail interactions 396
Figure 9.8: Observing other team members putting into practice guidelines in the planning and structuring activities category, e-mail interactions 396
Figure 9.9: Team members putting into practice guidelines in the using technology category, e-mail interactions 397
Figure 9.10: Team members putting into practice guidelines in the expectation of team members category, meeting two 400
Figure 9.11: Team members putting into practice guidelines in the planning and structuring categories, meeting two 402

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Declaration

The author grants the power of discretion to the university library to allow the thesis to be copied in whole or in part without further reference to the author.

Abstract

The topic of this research is characterising and monitoring mutual understanding in multidisciplinary teamwork. Existing literature has not drawn these two themes together in great detail. This research brings together literature from these two themes. This thesis explores the nature of mutual understanding in teams, monitors its evolution in one multidisciplinary team and proposes a set of guidelines for enhancing and promoting mutual understanding in teams that communicate face-to-face and by electronic-mail (e-mail).

The term 'mutual understanding' although commonly referred to in literature, remains a term which is not well defined. For this reason a more precise definition is necessary to identify and establish what this term actually means. In addition, the theoretical work on mutual understanding, and aspects related to mutual understanding are often limited to dyadic interactions, involving just two persons. As teams can be more than two persons more attention needs to be paid to extend existing research. Further, the process of how mutual understanding can be monitored has not been well defined, and attempts which have been made also focus on dyadic interactions. This identifies and establishes the need to characterise a method to monitor the evolution of mutual understanding in a team.

In the context of teamwork, understanding and supporting team members and their tasks is necessary to work towards shared goals and objectives. Sharing information is also important and can contribute towards the progress that the team makes. Including team members who have first-hand experiences to share can also benefit the make-up of the team. However, sometimes changes need to be made to accommodate team members' individual needs, especially when the team member in question has a disability. Additional challenges can also be encountered when the team in question is multidisciplinary due to differences in disciplinary backgrounds, practices, professional languages, understanding, cultures (disciplinary, institutional, and cultural), and assumptions in communication. Such challenges can make it harder for mutual understanding to evolve in this type of team.

This thesis presents a definition for mutual understanding that can be applied to a team and a method to monitor the evolution of mutual understanding. Detailed empirical analysis of a case study looking at how mutual understanding evolves in a large multidisciplinary team that communicates as a group face-to-face once every 3- months and uses e-mail messages to stay in touch with the team at all other times is also presented. Furthermore the analysis identifies how categories or aspects of mutual understanding appear over time. This analysis can provide an insight to developers and designers in computer supported cooperative work (CSCW) to show them in detail, how a team communicates together face-to-face and by e-mail, but in the context of mutual understanding. Also based on the empirical analysis, guidelines are proposed to promote the evolution of mutual understanding in other types of teamwork. Guidelines are aimed at team members and not just the manager or leader and focus on the two forms of interactions which are the focus of this investigation, face-to-face and e-mail communication. To assess the value of the proposed guidelines a validation exercise using a separate multidisciplinary team was performed.

Chapter 1

Introduction

Chapter 1: Introduction

This chapter introduces the research aim and objectives. It also briefly summarises related concepts to set the scene for this investigation. Contributions are listed, the methodology is explained and the thesis structure is presented. This chapter ends with a conclusion.

1.1 Research aim

There are increasingly more teams that are multidisciplinary in nature, teams that are composed of individuals from different disciplinary backgrounds. They combine multiple skills and knowledge in order to jointly solve a problem, work on joint activities, and to develop applications and environments (Rauch et al. 1996; McCarthy et al. 1991; Pohl and Jacobs, 1994). However, the literature reports that multidisciplinary teamwork is difficult, because of differences in backgrounds, practices, professional language, understanding, cultures (disciplinary, institutional, and cultural), and assumptions in communication (Scaife et al. 1994; Preece et al. 2002). As a result, we need deeper insight into how multidisciplinary teams who have a common goal work together and in particular how they achieve mutual understanding sufficient to achieve their goals. This thesis explores the nature of mutual understanding in teams, monitors its evolution in one multidisciplinary team, summarises the method which evolved from the process of monitoring the evolution of mutual understanding and proposes a set of guidelines for enhancing mutual understanding in teams that communicate face-to-face and by e-mail.

The next section looks at the research objectives of this investigation.

1.2 Research objectives

This thesis reports a detailed case study into how one multidisciplinary project team communicated both orally, through face-to-face meetings and in writing, by sending e-mail messages to the team, and how it evolved mutual understanding. The six main objectives of this research are:

1. Provide a working definition of 'mutual understanding' based on a characterisation of its essential components,
2. Develop a method to monitor the evolution of mutual understanding within a team,
3. Apply the definition and method to data collected from a multidisciplinary project team to derive insight into the nature of the evolution of mutual understanding paying close attention to having blind and visually impaired team members,
4. Provide designers and developers in CSCW the insight into how mutual understanding evolved in this particular team, which may be considered when enhancing existing products or prototyping new products,
5. Interpret the insights into proposed guidelines to promote the evolution of mutual understanding in multidisciplinary teamwork, and
6. Validate the proposed guidelines by using a separate multidisciplinary team.

The next section and sub-section reviews what the term mutual understanding means.

1.3 Motivations and background: What is 'Mutual understanding?'

This section and following sub-sections provide a plausible definition of mutual understanding from literature, outlines the process of developing mutual understanding and relates the term mutual understanding to teamwork.

1.3.1 One plausible definition from the literature

Mutual understanding is a term which has been taken for granted in literature. Brennan (1990) is one of few authors who actually define mutual understanding. In her definitions, mutual understanding is viewed as "*A particular kind of mutual knowledge - the state at a particular moment in a conversation where both people are reasonably sure that they're jointly focused on the same thing, and that they both understand what has just been said regarding it*" and "*A state where two people are jointly focussed with respect to some piece of their mutual knowledge, presumably one that they have just established by talking about it or using ostensive cues. This state is not achieved automatically, by default; nor is it reached autonomously; nor is it infinitely recursive or mysterious. It is achieved step by step, through the process of grounding*". Hence, she identifies mutual understanding in terms of mutual knowledge, itself an elusive term. Her definition can be analysed into a list of constituent parts:

- Mutual understanding is a state,
- It requires mutual knowledge,
- The participants must be 'jointly focussed', which suggests referring to an object in a face-to-face setting,
- The participants must be aware of their own and the other's understanding,
- Mutual understanding is achieved through interaction /conversation, and
- Mutual understanding is achieved through 'grounding', the exchange of evidence about understanding.

Although the notion of mutual understanding appears frequently throughout literature it is rarely defined clearly or researched precisely. Murakoshi and Ochimizu (1998); Mulder and Swaak (2000) and Pohl and Jacobs (1994) all use the term mutual understanding without defining it or including any of the ingredients that Brennan (1990) suggests are necessary for mutual understanding. However, Mulder and Swaak (2001) do list four interesting aspects (task/domain; process; social interaction and technology) group members need to update their mutual understanding.

In addition, Paek and Horvitz (2000), based on the work of Clark and Schaefer (1989) developed a method for determining when participants in a conversation have reached sufficient mutual understanding, this however was limited to dyadic interactions (involving two persons). A method such as this can become difficult to apply when there are more than two persons.

Despite Brennan being one of few authors who has defined the term mutual understanding, others have not applied or referred to her definition when discussing mutual understanding. Overall, Brennan's definitions are not wholly satisfying, because it is not clear whether all of these constituents are necessary and sufficient to achieve mutual understanding. In order to pursue a definition of mutual understanding

we must examine those contributing concepts. This will be undertaken in Chapter 3.

The next sub-section looks at the process of developing mutual understanding.

1.3.2 The process of developing mutual understanding

Brennan's (1990) definitions imply a conversational process of achieving mutual understanding through grounding, the exchange of evidence. This is also taken up by Kraut et al. (2003), who, based on the work of Clark and Brennan (1991), defines grounding as *"The interactive process by which communicators exchange evidence about what they do and do not understand over the course of a conversation, as they accrue common ground"*. Further, Dillenbourg et al. (1996) says that *"Common ground has been claimed a necessary ingredient for many aspects of communication and collaboration. To understand a spoken sentence, the meaning of the words that the speaker uses must be known to both. Grounding is the process of augmenting and maintaining this common ground"*. According to Dillenbourg (1999) establishing common goals is part of constructing common ground and is associated with the notion of belief. Paek and Hovitz (2000) also view common ground in the context of mutual belief *"Participants must collaborate to try to establish the mutual belief that the listeners have understood what the speaker meant as part of their shared set of beliefs of common ground"*. Keysar et al. (1998) argues that common ground is a type of shared information, but mutual belief alone is not sufficient. Clark (1992) views common ground in terms of three elements knowledge, belief and suppositions. According to Clark, common ground is *"The sum of the participants mutual knowledge, beliefs and suppositions"* (Clark, 1992). Thus common ground and grounding are closely integrated.

Grounding (the expansion of common ground) is achieved through interaction, and the conversational exchange of evidence about what is known and understood. There are also different grounding constraints associated with using different media (Clark and Brennan, 1991). In short, grounding does require extra effort and may slow down the interactions, but it can lead to better results in the task (Dillenbourg et al. 1996). Like (Brennan, 1990; Dillenbourg et al. 1996), Mäkitalo et al. (2001) also supports the viewpoint that common ground is constructed and maintained during the interactive process of grounding. Dix (1998, 2004) has also said that grounding constraints are weaker in text-based interactions (for example, e-mail communication), compared with face-to-face interactions, but has not examined this empirically. Veinott et al. (1999) and McCarthy et al. (1991) have confirmed this point by conducting empirical investigations. Both sets of authors reached the conclusion that grounding constraints are weaker in text-based interactions.

Mulder (2000) devised an interesting coding scheme to capture categories or aspects by which group members update their mutual understanding moment-by-moment when working in a group, mediated by technology. Mulder coded speech acts for group interactions into four categories or aspects:

- Task/domain: involves the task and the project description,
- Social interaction: does not involve the task, but more personal and cultural utterances,
- Process: planning of a next meeting, and structuring the current meeting, and
- Technology: utterances related to technology use or media choice.

Mulder (2000) believes that team members should converge on what they are working on (the task), with whom they are working, how they fulfil a group task, and what technologies they use. She and her colleagues (Mulder and Swaak, 2000; Mulder et al. 2002) used this coding scheme to track how different aspects of interaction contributed to mutual understanding when studying how globally dispersed engineering teams communicated. More specifically they (Mulder and Swaak, 2000; Mulder et al. 2002) used this coding scheme to better understand what actually happens when two groups of students, at different locations, work on a co-design task and can only communicate by using technology.

Current methods described in literature also fail to address how mutual understanding actually evolves and how it can be monitored. The work of Paek and Horvitz (2000) is an exception. Monitoring mutual understanding is important, as Bly (2003) says shared knowledge and mutual understanding develop over time with resources at hand. Mulder (2000a) showed that the concept of interaction contains four categories or aspects (task/domain; social interaction; process and technology), and during group work, the understanding of each evolves moment-by-moment, changing because progress is made in the group and work gets done. However, it is difficult to actually monitor mutual understanding, as (Mulder, 2000a) did not define this term, including only the four categories or aspects of interactions, which she saw as important to update mutual understanding.

The next section reviews mutual understanding in the context of teamwork.

1.3.3 Mutual understanding in the context of teamwork

The definitions of mutual understanding by Brennan (1990) are restricted to dyadic interactions. It may be that team interaction just amplifies the challenges evident in dyadic interaction. It is unclear whether, or how, this generalises to team interactions and whether team interactions are different or more complex, and whether mutual understanding within teams takes on different or additional characteristics. Jackson et al. (2000) confirms that for communication to be successful each utterance must become part of participant's common ground and this becomes more complicated in groups larger than two.

Katzenbach and Smith (1993) define a team as *"A small number of people with complementary skills who are committed to a common purpose, performance goals, and common approach for which they hold themselves mutually accountable."* This definition can also be analysed into a list of constituent parts:

- A team has a small number of people,
- People bring complimentary skills,
- They are committed to a common purpose, goal(s) and approach, and
- Mutually accountable.

Considering the definitions of mutual understanding by Brennan (1990) and the above definition of a team we can see that there are two similarities. One, commitment to commonality by Katzenbach and Smith (1993) and joint focus by Brennan, and two, mutual accountability by Katzenbach and Smith and interactions/conversations by Brennan.

Team size is also pertinent, if the membership goes above nine, communication tends to become

centralised because members do not have an adequate opportunity to speak to each other, and extra time and effort are required to ensure good communication (Katzenbach and Smith, 1993). Dix (1994) says part of the job of communicating is coming to a mutual understanding about the subject of conversation. Despite the many benefits of working in a team (Robbins and Finley, 2000), the results are not always successful (Turban et al. 1996; Robbin and Finley, 2000), particularly in a multidisciplinary team. Common difficulties preventing multidisciplinary teams from successfully communicating ideas between each other include differing backgrounds, assumptions about good practice, what the correct way of working should be, and the difficulty of reaching any level of shared understanding between different parties with regards to the referents and terms that are being used (Scaife et al. 1994; Preece et al. 2002). Concurrent engineering literature in particular (Jacobs and Ketherz, 1994; Pohl and Jacobs, 1994) explicitly highlights that diversity is a challenge to mutual understanding in teams.

The next sub-section reviews literatures on dispersed teams.

1.3.4 Dispersed teams

Teamwork is becoming increasingly distributed across space and time, and the need to collaborate with remote partners to accomplish collaborative tasks has increased substantially (Kraut et al. 2003; Carmel, 1999; Olson and Olson, 2000). However, working in a distributed mediated team is not easy (Mulder and Swaak, 2000). Despite face-to-face interactions being one of the richest ways to communicate with people (Rosenberg and Sillence, 2000), meeting in this way is not always possible or feasible, and technology becomes important. Using technology sometimes produces work which is not of the same quality as work that has been done face-to-face (Olson and Olson, 2000). Technologies such as e-mail is a poor substitute for face-to-face communication, particularly when discussing content, due to lack of subtle cues that are available in face-to-face settings. Alternatively, e-mail has the benefits of quoting, providing a history of past conversations and adding attachments. In this way, e-mail conversations have a distinct advantage over ephemeral face-to-face conversations (Decheneaut and Belltotti, 2003).

Rosenberg and Sillence (2000) say it is important to establish the aspects of the common ground that are normally taken for granted in co-presence. Research has already shown that communication is more efficient when people share greater amounts of common ground (Keysar et al. 1998; Olson and Olson, 2000). It is easier to establish common ground when people can see where each person is looking (Bly, 2003). Face-to-face communication relies heavily on gestures and the physical world to establish common ground (Greespan et al. 2000). A lack of common ground or shared goals can lead to conflict and disruption, and in such situations people are encouraged to develop it, either by travelling and getting to know each other, or by using video channels because you can see one another (Olson and Olson, 2000). Notions of common ground begin to break down when participants work independently, which is often the case in asynchronous communication (Greespan et al. 2000). It is important that team members remember to share visual artefacts because it often makes it easier to establish common ground and to realise a shared representation of what would otherwise be an abstraction. Also, when using technology and different media it is important to consider the grounding constraints, which were identified by Clark and Brennan (1991), and to try and reduce the problems by carefully planning your interactions. Further, recent work highlights that mutual understanding is more difficult to achieve in text-based and web-based

interactions. Mäkiltao et al. (2001, 2002) and Jarvelä and Häkkinen (2000) suggest that some of the most important processes in human communication, like creation of mutual understanding or shared values and goals, are hard to produce in a web environment, and it is much easier for participants to reach a mutual understanding in a face-to-face situation than in a web-based situation. This potentially suggests that there are some processes found face-to-face that are not present in web-based situations.

The next section examines the contributions.

1.4 Contributions

The four main contributions to this research are:

1. A re-definition for the term mutual understanding in the context of teams has been proposed, by adapting Brennan's (1990) definition. As chapter 2 brings to attention, the term mutual understanding is not well defined, despite being commonly referred to in literature. In addition, definitions, which have been proposed, have been based on dyadic interactions, and not larger sized teams.

2. To share the methods which have evolved from the process to monitor the evolution of mutual understanding and to apply the definition for mutual understanding that has been developed. Mutual understanding is monitored for two forms of interactions, oral, through face-to-face meetings and written communication, through e-mail messages sent to the team. Two methods were devised to characterise how to monitor the evolution of mutual understanding in face-to-face interactions and e-mail communication. Two separate methods were required due to differences in the two styles of interactions. Greespan et al. (2000) and Dix et al. 1998 both confirm that differences exist between the two styles of interactions, which have been referred to here. The methods may also be useful to other researchers working in a similar area. It is not intended to be applied by managers or team leaders, at it is a time consuming process to undertake.

3. Use this case study to provide insights to designers and developers in the CSCW community on how mutual understanding actually evolves when a team communicates face-to-face on a regular but far apart basis, and uses a group e-mail address in between each face-to-face meeting. Those insights are based on detailed empirical evidence. The insights may be useful for two main reasons. One, it can inform the design and development of a future tool to support remote interactions. Two, it informs the potential design suggestions for e-mail tools based on these findings. It was not the scope of this thesis to translate the insights into requirements for developers and designers. Also, to present a detailed analysis of having blind and visually impaired members in the team. Current literature has not examined this.

4. Guidelines have been proposed which are mainly targeted at the team members to promote the evolution of mutual understanding during team interactions. The guidelines are for the two styles of interactions, which are the focus of this investigation, face-to-face and e-mail. To structure those guidelines, the categories or aspects identified by (Mulder and Swaak, 2001) were used. Validation for those guidelines was conducted using a separate controlled group.

The next section examines the methodology which was employed for this investigation.

1.5 Methodology

Qualitative data from a multidisciplinary European research project was collected for 1-year of a 27-month project. There were nine partners from six European States that were involved in this project. Team members met at formal face-to-face consortium meetings once every 3-months, and used a group mailing list in between each meeting to stay in touch with the team. The project was developing technology to promote e-learning activities with blind and visually impaired persons.

Data was collected through attending formal face-to-face consortium meetings as a silent observer, audio recording each meeting and later transcribing the tapes. E-mail messages sent to the project mailing list were also used. To identify what disciplines were involved in this project a questionnaire was used. Telephone interviews were also conducted with team members to find out their view on the teams face-to-face and e-mail interactions. Empirical data was analysed qualitatively at the discourse and textual chunk level, using the coding scheme developed in chapter 4.

Insights for both discourse chunks and textual chunks were reported by identifying themes at three time intervals, short, medium and long term. In each discourse chunk, grounding evidence was first identified, and then the characterised states and sub-states reported in chapter 3 were applied to the grounding evidence. In each discourse chunk the researcher was also looking for evidence of increased common ground and mutual beliefs, according to the re-definition for mutual understanding. In addition the four categories or aspects defined by (Mulder and Swaak, 2001) were identified and potential evidence of the five types of problems reported by Cramton (1997; 2002) in dispersed collaboration were highlighted in the data.

For textual chunks, grounding evidence was not monitored on a moment-by-moment basis, as reported above for discourse chunks. In place, the re-definition for grounding from chapter 3 was used. According to this re-definition, responses were acceptable for deriving grounding evidence. Analysis was therefore performed looking at the entire message and not moment-by-moment as outlined for discourse chunks. Evidence of increased common ground and mutual beliefs, were still examined, so were the categories or aspects by (Mulder and Swaak, 2001) and the problems reported by Cramton (1997; 2002).

The evolution of mutual understanding in this team focused on the progress, from the observer's point of view that this team made during a 1-year period.

The next section outlines the structure of the thesis.

1.6 Outline of the thesis

The remaining structure of this thesis is now described:

Chapter 2: Literature review: Reviews related work.

Chapter 3: Defining and monitoring mutual understanding: Describes the development of the re-

definition for mutual understanding and the methods which evolved from the process for monitoring the evolution of mutual understanding.

Chapter 4: Methodology: The methodology for collecting and analysing the empirical data is explained.

Chapter 5: Monitoring evolution of mutual understanding: The results based on a detailed case study monitoring the evolution of mutual understanding in a team communicating, both orally, through face-to-face meetings and in writing, by sending e-mail messages to the team are explained.

Chapter 6: Other interesting analyses: Other interesting analyses are also included. Examining group development phases, predicting differences in different meetings, examining behaviours in different meetings, examining time and focussing on mutual understanding between different sets of stakeholders in a multidisciplinary team. Also included are Mulder's categories or aspects and Cramton's problems.

Chapter 7: Insights and patterns: This chapter discusses insights and patterns presented in chapters 5 and 6.

Chapter 8: Guidelines to promote mutual understanding in team interactions: A presentation of the guidelines, which have been proposed to promote mutual understanding. Those guidelines emerged from the empirical data, which was collected for this investigation.

Chapter 9: Guidelines validation: Findings from the validation exercise are presented which was performed using a controlled group.

Chapter 10: Conclusion and Future work: Summarises the research and the contributions described in this thesis and proposes future work.

A diagrammatic representation of the thesis structure is presented in figure 1.1.

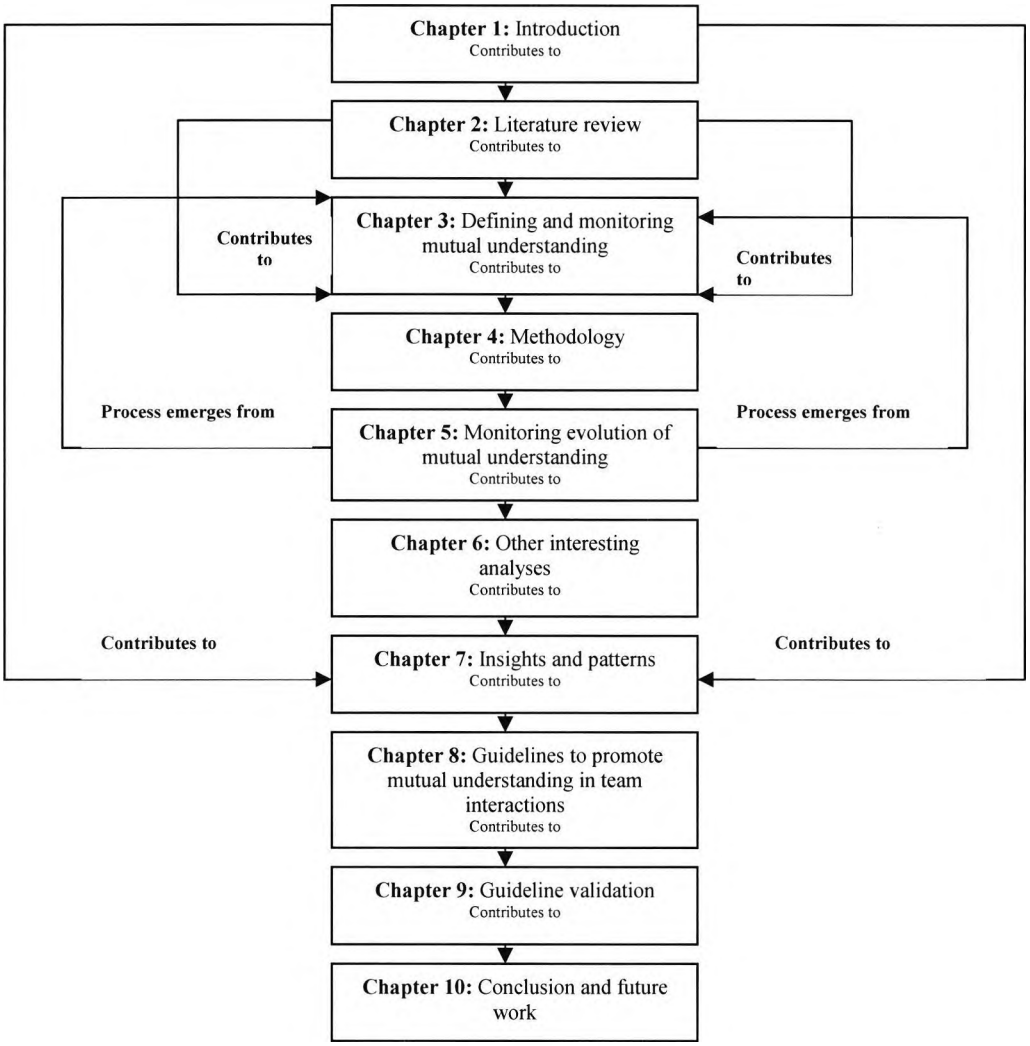


Figure 1.1: Overview of the thesis

The next section concludes this chapter.

1.7 Conclusion

This chapter laid the foundations for the thesis. It introduced and justified the research, described the methodology and gave an overview of the remaining eight chapters. On these foundations, the thesis can proceed with a detailed description of the research.

The next chapter reviews related literature.

Chapter 2

Literature Review

Chapter 2: Literature review

Current literature takes the term mutual understanding for granted, often referring to it, but not providing sound definitions. It is also not clear what characterises the main ingredients of this term. Definitions which are found are also restricted to dyadic interactions, and lack detail on how mutual understanding can be monitored. Methods which are proposed to monitor mutual understanding are also limited to dyadic interactions. As teamwork can include more than two persons, information based on dyadic interactions may not apply to situations that involve teamwork. This review shows how literature from the following areas, mutual understanding, ingredients related to mutual understanding and teamwork can be drawn together.

2.1 What is 'Mutual understanding?'

This section shows that the term *'mutual understanding'* is commonly referred to in literature. It also shows how some authors use it but do not provide a sound definition for this term (e.g. Pohl and Jacobs, 1994; Murakoshi and Ochimizu, 1998).

Brennan (1990) is one of few authors who defines the term mutual understanding. Brennan has two definitions:

"*A particular kind of mutual knowledge - the state at a particular moment in a conversation where both people are reasonably sure that they're jointly focused on the same thing, and that they both understand what has just been said regarding it*", and

"*A state where two people are jointly focussed with respect to some piece of their mutual knowledge, presumably one that they have just established by talking about it or using ostensive cues. This state is not achieved automatically, by default; nor is it reached autonomously; nor is it infinitely recursive or mysterious. It is achieved step by step, through the process of grounding*".

Brennan's (1990) two definitions are not viewed as distinct, but the second definition simply offers more detail than the first. Drawing the two definitions together shows that according to Brennan, mutual understanding is a *'state'*; requiring *'mutual knowledge'* and *'joint focus'*. In addition, Brennan's definitions suggests that mutual understanding cannot be achieved on its own, requiring interaction and conversations, and it is the process of grounding that provides evidence of understanding to the communicating parties.

Rogers (1986), like Brennan (1990), also refers to the need to create and share information to reach mutual understanding. The following definition by Rogers is defined looking at communication. *'A process in which participants create and share information with one another in order to reach a mutual understanding. Communication is always a joint occurrence - a mutual process of information sharing between two or more persons'*. Although the definition suggests that information can be shared between two or more persons, his Venn diagram to depict the degree of mutual understanding for dyadic interactions, involving two subjects, A and B is restricted to dyadic interactions only (see figure 2.1). In practice, Rogers' Venn diagram may be extended to cover more than two persons by including more ellipses, where mutual understanding amongst the participants would become a product of the different participants understanding.

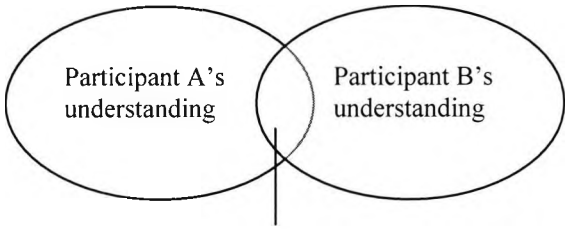


Figure 2.1: Rogers' Venn diagram of mutual understanding

The next section shows how different authors from a range of literature refer to the term mutual understanding.

2.1.1 How is 'mutual understanding' referred to in different sets of literature?

This section reviews how the term mutual understanding is referred to in four sets of literature, learning; spoken dialogue systems; concurrent engineering and video, e-mail and teleconference based interactions.

Learning is examined first.

2.1.1.1 Learning

Literature on learning reveals that (Mulder and Swaak, 2000; Mulder et al. 2002; Baker et al. 1999) use the terms mutual understanding and shared understandings interchangeably in their investigations. Mulder and her colleagues did however define the term shared understanding. Mulder et al. (2002) defines shared understanding using the work of (Clark and Brennan, 1991) as "*Shared understanding refers to mutual knowledge, mutual beliefs, and mutual assumptions*". However, the following authors (Clark et al. 1983; Clark and Brennan, 1991; Clark, 1992; Clark and Schaefer, 1992; Mulder et al. 2000) all refer to mutual knowledge, mutual beliefs, and mutual assumptions as common ground - a type of shared information.

Mulder (2004) reports that in order to work and learn together, distributed team members require effective communication and shared understanding amongst them. Mulder reaches this conclusion based on Clark and Brennan's (1991) work. Mulder also mentions that reaching shared understanding is a rather complicated process, especially in a multidisciplinary team. This is because using the same words does not automatically mean understanding one another. Mulder also did not refer to shared understanding according to the definition of Clark and Brennan as discussed in Mulder et al. (2002). Mulder simply said that reaching (and maintaining) shared understanding is defined as the process (multidisciplinary) team members employ to gain new understanding or to correct, improve or enrich the current team understanding, and thus collaboratively learn and collaboratively reflect.

Mulder et al. (2002) believe that group members working and learning together with technology need a certain level of shared understanding about the content (task related interaction), the procedure (planning of activities), each other (social interaction) and using technology. The four categories or aspects are interesting and their analysis reveals how changes appear over time. According to Mulder (2004) by looking at the four categories or aspects, the nature of interaction can be described and more of an insight

can be gained into the nature of that interaction. Mulder and her colleagues do not provide a definition of the term mutual understanding, but their definition of shared understanding, interpreted by others as common ground (Clark et al. 1983; Clark and Brennan, 1991; Clark, 1992; Clark and Schaefer, 1992; Mulder et al. 2000) implies that mutual understanding is viewed as common ground. Interestingly, their categories or aspects illustrate how to examine and monitor mutual understanding in teamwork. Also looking at shared understanding, Hill et al. (2001) highlight that to develop shared understanding, the exchange of information and mutual agreements is important. Mulder's categories or aspects show what categories of information can be exchanged during communication.

Boddy (2002) when discussing group performances also distinguishes between content and process. According to Boddy, *content* refers to the task of the project group. That is the substantive deliverable work that it must produce. For example, designing a product, agreeing on a new organisational structure or setting up a website. Thus when a group is sharing ideas about some aspect of the job, they are dealing with content issues. These are often to do with immediate, tangible questions, such as where to place the machinery, what software package to use and who will be responsible for checking quality. Also, Boddy refers to *process* as the way the group goes about the task. There are many dimensions to the processes in a group. They include the pattern of contributions to the discussion and whether members listen or constantly interrupt. Process also encompasses if members speak in a competitive, aggressive way or is the style one of mutual cooperation? It is important to also draw to attention that process covers the verbal and non-verbal behaviours of members, how they solve problems and how they reach decisions. Therefore, content refers to what the group does and process refers to how the group does it.

Similarities exist between how Boddy (2002) and Mulder and colleagues (Mulder et al. 2000) refer to content. However, process differs in how those authors have defined this term. It is important to note that although Mulder and colleagues referred to shared and mutual understanding in their work, shared understanding is not defined. It is also important to note that Boddy did not refer to content and process in terms of group performance in the context of shared or mutual understanding.

Baker et al. (1998) also supports Brennan's (1990) belief that grounding is required for mutual understanding. Baker and his colleagues interpret grounding as "*the interactive process by which common ground (mutual understanding) between individuals is constructed and maintained*". In addition, they also view common ground as a set of mutual beliefs of conversational participants, about the meaning of their utterances during conversation. The referral to mutual understanding in brackets, suggests that Baker et al. apply the terms common ground and mutual understanding in an interchangeable way, although they are not explicitly defined by them.

Baker and his colleagues' later work (Baker et al. 1999) defines common ground in the context of mutual understanding as one of the ingredients of common ground. "*A common ground of mutual understanding, knowledge, beliefs, assumptions and presuppositions, and so on, has been claimed to be necessary for many aspects of communication and collaboration*". This definition is similar to Clark and Carlson's (1982), who states that "*common ground is the knowledge, beliefs and suppositions that two people share in a technical way*". Baker and his colleagues simply added mutual understanding as an additional ingredient to Clark and Carlson's definition. There were no other differences between Baker

and his colleague's definition of common ground and Clark and Carlson's. Other authors (Mäkitalo et al. 2001, 2002) also view constructing common ground in the same manner as Baker et al. (1999).

Baker et al. (1999) also identifies that *"..mere presentation or accessibility of information is not enough: specific interactive processes are used to ensure mutual understanding of contributions that are added to the common ground"*. Based on Clark and Schaefer's (1992) work, Baker and his colleagues reveal that mutual understanding consists of more than just presentation and accessibility of information. The grounding process is also required. As already brought to attention, Brennan (1990) also mentioned in her definitions of mutual understanding the need to have grounding. However, according to Baker and his colleagues *"The grounding model is concerned with microanalysis of the negotiation of mutual understanding and agreement in the domain of reference"*. Related to the last point captured in the quote by Baker and his colleagues, looking at agreement in the domain of reference, Dillenbourg and Traum (1999) reveal that mutual understanding is not only concerned with agreement, disagreement is important as well. *"To be able to disagree requires a certain amount of mutual understanding"*. Grounding evidences alone do not provide evidence of agreement, evidence for disagreements can also be provided.

Some authors (Mäkitalo et al. 2001; 2002; Järvelä and Häkkinen, 2000) also draw comparisons between reaching mutual understanding in face-to-face environments and web based environments. Both sets of authors argue that some of the most important processes in human communication like creation of mutual understanding or shared values and goals are hard to reproduce in a web environment.

Dillenbourg and Traum (1999) also reveals that in the context of computer supported cooperative learning, tools do have an impact on the way that mutual understanding is achieved. Dillenbourg and Traum referred to the term mutual understanding in their exploration of finding out the role of a shared whiteboard in building a shared understanding of the task and its solution in the context of a computer-supported collaborative work environment, expecting a whiteboard to *"increase both mutual understanding at the utterance level, namely because a schema can disambiguate verbal expressions, and at the task level, by sharing facilitating a shared representation of the solution"*. Identifying how mutual understanding can increase is not only significant to learning tasks, but other collaborative activities as well, as increasing mutual understanding should be one of the main outcomes of collaborations and interactions and not to remain at the same level. Dillenbourg and Traum suggest this explanation.

Interestingly (Mäkitalo et al. 2001; 2002) highlight the importance of negotiation for the process of reaching mutual understanding. *"Through the negotiation processes the participants can reach mutual understanding, but there has to be space for negotiation"*. Baker et al. (1999) also mentions the importance of negotiation of mutual understanding, but in the context of examining grounding. Mäkitalo and her colleagues did not explicitly include in their quote that grounding and negotiations were related, but this connection can be assumed. In addition, Mäkitalo and her colleagues based on the work of Baker et al. (1999) came to an interesting opinion, that mutual understanding already exists between individuals with the same cultural backgrounds and that new aspects of mutual understanding will evolve during the interactions. *"At the beginning of any interaction, there will already exist some mutual understanding between individuals sharing the same cultural background. But also the participants with the shared*

culture need to maintain and consolidate their common ground during the interaction itself in order to explore new aspects of mutual understanding".

The next section looks at how the term mutual understanding is referred to in spoken dialogue systems.

2.1.1.2 Spoken dialogue systems

The following authors examine spoken dialogue and reports how humans communicate with systems that have been developed, by referring to the use of the term mutual understanding (Heeman et al. 1998; Ward, 1996; Ward and Heeman, 2000). Like Brennan (1990), the following authors (Heeman et al. 1998; Paek and Horvitz, 1999; 2000) suggests that to reach mutual understanding the grounding process is important. Heeman and his colleague said *"...It (spoken dialogue systems) must collaborate with the user in order to reach mutual understanding of what the user said. This process is referred to as grounding".* This comment was reached referring to the following work (Clark and Schaefer, 1989; Clark and Wikes-Gibbes, 1986). The definitions of Brennan, Heeman et al. and Paek and Horvitz all suggest that interactions and conversations are required for mutual understanding. However, in the context of spoken dialogue systems, it is only Paek and Horvitz (2000) who reveals that refraining from grounding can result in communication failure, and its repair can be costly in terms of time and efforts. Brennan and Hulteen (1995) also refer to repairs in the context of examining that conversation is not simply the encoding and decoding of well-formed messages, but is collaborative. Therefore when a misunderstanding is noticed, both conversational partners participate in repairing it. The point on repairs was also discussed in terms of dyadic interactions.

Paek and Horvitz (1999; 2000) say that people engaged in a conversation elegantly coordinate the presentation and acceptance of utterances to achieve and confirm mutual understanding. Clark and Brennan (1991) argue that for a contribution to be complete, two phases are necessary, presentation and acceptance. The presentation phase is defined as A presents utterance *u* for B to consider. He does so on the assumption that, if B gives evidence *e* or stronger, he can believe that she understands what he means by *u*. The *acceptance phase* is defined as B accepts utterance *u* by giving evidence *e* that she believes that she understands what A means by *u*. She does so on the assumption that, once B registers that evidence, he will also believe that she understands. Thus grounding is most evident in the acceptance phase. Mulder (2004) also states that communication is only effective when one person presents an utterance and another accepts that utterance. By coding data using *'presents'* and *'accepts'* allow miscommunication to be identified. Identifying miscommunication is also important.

Similar, to Clark and Brennan's (1991) interpretation of the contribution and acceptance model, Cahn and Brennan (1999) states that when a contribution appears to have met the grounding criteria of both partners, they may assume that they have mutually understood one another. *" In the presentation phase, a speaker presents an utterance to an addressee; in the acceptance phase, evidence of understanding is accrued until it is clear to both parties that the propositions put forth in the original or revised presentation are mutually understood and therefore part of their common ground".* Clark and Brennan (1991) did not mention mutual understanding and common ground as being related concepts as demonstrated by Cahn and Brennan (1999). Brennan and Hulteen (1995) also show that systems are not required to provide positive feedback at all stages (Brennan, 1998) as this would be tedious and

redundant, suggesting that the acceptance phase may not always be fulfilled, particularly in the context of referring to spoken dialogue systems.

Paek and Horvitz (2000) argues that conversation is a collaborative effort, a type of joint activity, in which participants coordinate the presentation and acceptance of their utterances, to establish, maintain and confirm mutual understanding. The process by which they do this is called grounding, and refraining from grounding can result in communication failure, and its repair can be costly in terms of time and efforts. Paek and Horvitz also say, *"In the collaborative view of conversation, speakers do not produce an utterance in isolation. They do so with the intent of making themselves understood. Hence, they design an utterance for their audience, and thereafter, seek out signs of understanding. Similarly, listeners do not passively receive utterances. They attempt to understand what the speaker meant, and respond accordingly. Every response, even silence, which relinquishes the opportunity to repair, constitutes feedback or evidence of understanding ".*

The next section looks at literature from concurrent engineering

2.1.1.3 Concurrent engineering

Literature from the concurrent engineering field (Pohl and Jacobs, 1994) suggests that cooperation of people coming from different phases of the engineering process is important. *"Cooperation between different groups is reached by gaining mutual understanding".* To enable mutual understanding, particularly in a cross-functional team, traceability between the different views (products) is essential. Moreover the different views must be related to each other and presented in a suitable way to support the finding and resolving of inconsistencies, conflicts and different opportunities. Conflicts arise as a result of naming problems like synonyms and homonyms, and having different goals and/or objectives, and can only be solved through conversations which would lead towards common decisions (Pohl and Jacobs, 1994).

In the context of mutual understanding, Pohl and Jacobs (1994) believe that diversity which can include different views, aims, responsibilities, use of language, tools and techniques can all cause problems for mutual understanding. *"Diversity is the core of the problem of mutual understanding".* Teams can have different views and aims about the system, since they are all responsible for different development phases, with each phase having its own language, objectives, tools and techniques. Although Pohl and Jacobs do not define the term mutual understanding, they do reveal the problem that diversity causes.

Also based on related work (Jacob and Kethers, 1994) Pohl and Jacobs (1994) like other authors (Brennan, 1990; Heeman et al. 1998; Paek and Horvitz, 1999; 2000) mentioned in section 2.1.1.1, support the notion that interactions are necessary to achieve mutual understanding. *"As mutual understanding requires the exchange of ideas, comments and explanations the intuitive presentation of products have to be complemented by means to support informal communication, negotiation, and decision making. Therefore different communication styles are needed".*

The next section looks at video, e-mail and teleconference based interactions.

2.1.1.4 Video, e-mail and teleconference based interactions

Veinott et al. (1999) refers to mutual understanding in the context of common ground. *"The mutual understanding and beliefs that arise from similar backgrounds and experiences is referred to as common ground".* As the preceding sections shows associating common ground and mutual understanding together is not a new claim (Mäkitalo et al. 2001, 2002; Baker et al. 1999). Veinott and her colleagues based their quotation linking common ground and mutual understanding together using the work of (Clark and Wilkes-Gibbs, 1986). Veinott et al. also believe that everyday conversations regularly involve negotiation, especially when two people do not have similar backgrounds or experiences. Because achieving common ground involves numerous mini-negotiations, they expect the achievement of common ground to be more successful when two people can see each other. This assumption is based on the work of (Clark, 1996). Veinott and her colleagues formulated an interesting prediction focussing on video mediated communication. They said *" ... pairs in the video condition would have fewer clarification questions (because their speech is more clearly understood), and need to check for mutual understanding less often (because the pairs will be able to visually monitor understanding)".* Dyadic interactions involving students were used as subjects. Results from Veinott and her colleagues prove that non-native speakers of English with video have a higher rate of instruction and check their mutual understanding more. Findings were consistent with a comment by (Kraut et al. 2003), who reports that *"When people can see where each person is looking it is easier to establish common ground".* Olson and Olson (2000) based on their laboratory studies commented that people from different cultures and with different linguistic backgrounds suffered without video to achieve common ground. In contrast, those with cultural and linguistic common ground succeeded with only audio, suggesting that media affects the construction of common ground.

Kraut et al. (2003) also reports some interesting findings based on the use of video. Kraut and his colleagues argue that *"visual information can help people communicate about the task, by aiding conversational grounding, or the development of mutual understanding between conversational participants".* Three conditions were examined – side-by-side (where worker and helper worked in the same room), audio-video (where workers were connected by full-duplex audio and a head mounted video camera and monitor) and audio only (where workers were connected to remote helpers by full-duplex audio only). Results show that video technology does not change performance, but does influence how workers talked about their task. With video the worker and the expert have a similar view of what the worker is doing, on a moment-by-moment-basis, and as helpers can see the worker, more proactive assistance is given by the helper, without the worker explicitly asking for it. This can only be achieved because the helper can see the worker and the signals given. Although this study highlights the benefits of video in establishing common ground and mutual understanding, it does not mention how the results may be affected if team members have a visual disability or impairment, and visual output or signals cannot be seen.

Murakoshi and Ochimizu (1998) illustrate how the term mutual understanding is applied in context of e-mail messages, but fails to define what the term mutual understanding actually means. They say *"A speaker must be able to recognize whether a listener understands what speaker's utterances mean to get mutual understanding in the conversation".* Their work highlights that recognition of understanding

plays an important role in achieving mutual understanding, but do not make it explicit that understanding can be achieved by the grounding process.

Brennan and Ohaeri (1999) say that a teleconference program, such as a *'chat'* program, can make it harder for the persons interacting to ground their utterances, due to non-copresence, to make sure that the interacting persons mutually understand one another. Non-copresence suggests that the partners or participants are not all together in the same physical space.

The next section examines the ingredients necessary for mutual understanding, as implied by insights gained from the preceding section and sub-sections.

2.2 What ingredients are required for 'mutual understanding?'

The preceding sections and sub-sections show that common ground, grounding and repairs are all relevant when discussing mutual understanding. This section in turn defines each of those terms.

2.2.1 Common ground

According to Clark (1992), common ground is the sum of the participant's mutual knowledge, mutual beliefs, and mutual suppositions. However, not everyone considers all three elements when talking about common ground, that is *'knowledge'*, *'beliefs'* and *'suppositions'*. For example, Clark and Marshall (1992) reveal that it is not sufficient for some information to be known by only one of the subjects. It has to be mutually known or to have a reason that it is believed to be mutually known by both of the subjects in order for it to be part of their common ground. Clark and Marshall refer to the element mutual knowledge in their discussion of common ground. Clark et al. (1983) views basing speaker inferences not just on any knowledge or beliefs he may have, but only on their mutual knowledge or beliefs which constitute their common ground. Clark et al's idea is different to the original characterisation by Clark (1992), as it does not mention both knowledge and beliefs, with the earlier work suggesting only one or the other, and in addition presuppositions is missing.

An example of common ground is when Boris' wife says to him in the morning, *"He is awake now"*, Boris identifies the referent of the pronoun *"he"* as their son David. Boris uses two pieces of information for this interpretation: He uses the semantic knowledge that the pronoun *"he"* can pick out any male person, among them his son, and he uses the pragmatic information that David is in common ground with his wife. In order to identify the intended referent, Boris searches his memory for potential referents (Keysar et al. 1998).

Unlike (Clark, 1992) who suggests that common ground is characterised by three elements, knowledge, beliefs and suppositions, Dix et al. (1998) views common ground as *simply "A shared understanding sufficient for the task in hand"*. Dix and his colleagues further state that to establish common ground, negotiating the meanings of words and constructing shared interpretations of the word is required, and is a process that is referred to as grounding (Clark and Schaefer, 1989).

Richter and Kruglanski (1999) when referring to written communication mentions that the writer designs messages basing it on terms and notions that he or she shares in common with a specific audience. Also

becoming cognizant of the common ground shared with one's audience and carefully crafting messages to suit the audience's assumptive comprehension may require appreciable mental effort that not all communicators might be prepared to expend. Looking at face-to-face settings, Larrson et al. (2002) and Cramton (2002) mention that interpersonal communication is a truly interactive process of making sense of each other and the world, a moment-to-moment search for common ground that is hard to replicate in geographically distributed settings. Cramton highlights that effective collaboration requires common ground, and a lack of common ground can lead to conflict and disruption (Olson and Olson, 2000). On the other hand, effective communication between people requires that the communicative exchange takes place with respect to some level of common ground. Common ground refers to that knowledge that the participants have in common, and they are aware that they have that in common (Clark, 1996).

Grice's (1975) work can also be considered when looking at how to achieve common ground by referring to the maxims described in table 2.1. Grice says *'Make your conversational contribution such as it required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged'*. Four categories have been developed: quantity, quality, relation and manner.

Category	Maxim
Quantity	1. Make your contribution as formative as is required (for the current purposes of the exchange) 2. Do not make your contribution more informative than is required
Quality	*'Try to make your contribution one that is true'* 1. Do not say what you believe to be false 2. Do not say that for which you lack adequate evidence
Relation	*'Be relevant'*.
Manner	'Be perspicuous' 1. Avoid obscurity of expression 2. Avoid ambiguity 3. Be brief (avoid unnecessary prolixity) 4. Be orderly

Table 2.1: Grice's four maxim's

However, how easy it is to put into practice what Grice has proposed is subject to personal opinion (Clark and Wilkes-Gibbes, 1986). Clark and Wilkes-Gibbes (1986) identify three problems with the maxims.

1. Time pressure. As speakers try to limit the time and effort they allow for planning and issuing each utterance, this often leads them to issue improper utterances. Only if all speakers take the time and effort that they need, they can produce proper utterances.
2. Errors. Speakers often issue improper utterances because they make errors and then have to repair them. However, if the speaker had taken more time and effort the errors could have been avoided.
3. Ignorance. Speakers sometimes realise that they do not know enough about their interlocutor to design a proper utterance, so they are forced to issue an improper utterance instead.

Next the elements *'knowledge'*, *'beliefs'* and *'suppositions'* are discussed. Clark (1992) identified the need to have all three when examining common ground.

2.2.1.1 Mutual knowledge

Sperber and Wilson (1982) say *'Mutual knowledge is knowledge of an infinite set of propositions"*.

A and B mutually know that p = def

A knows that p

B knows that p

A knows that B knows that p

B knows that A knows that p

A knows that B knows that A knows that p

B knows that A knows that B knows that p

etc., ad infinitum.

According to Sperber and Wilson's (1982) definition, mutual knowledge concerns knowledge which is shared and known to be shared. There is an infinite regress. Clark and Marshall (1992) further add that mutual knowledge is the same as shared knowledge. However, authors such as Krauss and Fussell (1990) use the terms mutual knowledge and common ground interchangeably. This shows that the term mutual knowledge is not always referred to in a unique way.

Clark and Marshall (1992) bring to attention that (Schiffer, 1972) has argued that Grice's (1957) definition of speaker meaning in natural language would not work unless the speaker and the audience mutually know, among other things, the effects particular utterances are intended to produce. Grice (1957) defined speaker meaning as *"S [the speaker] meant something by x"* is (roughly) equivalent to *"S intended the utterance of x to product some effect in an audience by means of the recognition of his intention"*. Traum (2000) shows that one of the problems associated with interpreting the intention of the speaker is that it requires mind reading on the part of the hearer. This comment by Traum is not in the context of mutual knowledge, but a general observation on intentions. It is included here, as what he has raised is important to the work on recognising speaker intentions.

Clark and Marshall (1992) show that mutual knowledge can be classified in various ways. Four varieties of mutual knowledge have been proposed. In addition, a division between general and particular knowledge is made. Generic knowledge is knowledge about kinds of things (about kinds of objects, states, events, and processes), whereas particular knowledge is knowledge about individual or particular things (about particular objects, states, events and processes). Identifying the right type of knowledge is important to correctly situate it in the context of building common ground.

The four varieties of mutual knowledge that Clark and Marshall (1992) propose are summarised. Community membership highlights that *"there are things everyone in a community knows and assumes that everyone in that community knows, too"*. Relevantly Clark and Marshall bring to attention that it is important to qualify the notion that everybody in a community needs to know a thing before it is taken to be mutual knowledge within that community. Physical copresence is the strongest evidence for mutual knowledge that people are generally prepared to accept. With linguistic copresence, many things that are referred too are only mentioned in conversation. Clearly, linguistic copresence is weaker evidence for mutual knowledge than physical copresence. This is based on the evidence that whereas seeing is believing, hearing about something requires more. Lastly, mixtures refer to how often mutual knowledge is established by a combination of physical or linguistic copresence and mutual knowledge based on community membership.

Clark et al. (1983) and Clark et al. (1992) do not mention the four varieties of mutual knowledge discussed, but relevantly argue that common ground is necessary in general for understanding demonstrative reference. A demonstrative reference is a reference that requires an accompanying gesture for its complete interpretation. This reference is picked out that is most salient not on general grounds, but against their particular common ground (Clark et al. 1983; 1992). To refer to a demonstrative reference suggests that physical copresence is required, although this connection is not explicitly stated.

Lastly, Straus and Olivera (2000) mention that the timing of messages in electronic communication is a factor which may inhibit attaining mutual knowledge. Section 2.4 shows how issues related to teamwork, discussed in the second section of this review, use mutual knowledge as a basis of identifying problems in the context of dispersed collaboration (Cramton, 1997; 2001; 2002).

Mutual belief is examined next.

2.2.1.2 Mutual belief

The definition of mutual belief is presented in the recursive form used to illustrate mutual knowledge (Sperber and Wilson, 1982), in the preceding section.

The definition for mutual belief simply presents *'belief'* and not *'knowledge'*. Otherwise in structure the two definitions are presented in an identical form. The recursive statement for mutual belief is:
A and B mutually believe that p = def
A believes that p
B believes that p
A believes that B believes that p
B believes that A believes that p
A believes that B believes that A believes that p
B believes that A believes that B believes that p
etc., ad infinitum.

Brennan and Ohareri (1999) shows that in a face-to-face conversation, while talking, a speaker can monitor an addressee's intonation and facial expression for feedback about whether the addressee is understanding or accepting what is being said. This makes it easy for the conversants to achieve a joint focus of attention and to come to the mutual belief that they are talking about the same things. As identified in section 2.2.1, Baker et al. (1998) views common ground as a set of mutual beliefs of conversational participants, about the meaning of their utterances during conversation. Both authors here highlight the importance of holding mutual beliefs during interactions.

The next section looks at mutual suppositions.

2.2.1.3 Mutual suppositions

Mutual suppositions is an element not widely discussed in literature. Clark and Marshall (1992) based on the work of (Stalnaker, 1977) add to our understanding what the term presupposition means, not supposition as (Clark, 1992) used. According to Stalnaker, pragmatic presuppositions are equivalent to

shared knowledge. *"A proposition p is a pragmatic presupposition of a speaker in a given context just in case the speaker assumes or believes that p, and assumes or believes that his addressee recognizes that he is making these assumptions, or has these beliefs"*. Stalnaker's later work (Stalnaker, 1978) showed that *"presuppositions are what is taken by the speaker to be common ground of the participants in the conversation, what is treated as their common knowledge or mutual knowledge"*. Stalnaker's work suggests that *'supposition's* refer to *'suggest'*, as knowledge to *'know'* and believes to *'belief'* as demonstrated in the preceding sections. Clark et al. (1983) confirms that what a speaker presupposes in his utterance is also part of common ground and potentially relevant. For example, when Buttrick says *"You know who this man is, don't you?"* he appears to presuppose explicitly that *"this man"* is the man the student would surely know. He also appears to presuppose, implicitly, that it is common ground that Reagan is better known than Stockman (Clark et al. 1983).

The next section looks at the grounding. Grounding is required to provide evidence of understanding.

2.2.2 Grounding

Authors (Dix et al. 1998; Traum and Nakatani, 1999) refer to the process of achieving common ground between subjects through grounding. Others (Traum and Allen, 1992; Veinott et al. 1999; Baker et al. 1998) refer to grounding as providing evidence for mutual understanding.

According to Clark and Wilkes-Gibbs (1986), in communication, common ground cannot be properly updated without grounding, *"a process to establish that what has been said has been understood"*. Clark and Wilkes-Gibbs work therefore shows the relationship between common ground and grounding. Dix et al. (1998) also shows the close relationship between common ground and grounding, highlighting that one of the main aims of grounding is to construct a meaning in the conversation which is sufficient for the task in hand. Literature (Clark and Schaefer, 1992) also mentions the grounding criterion. This criterion states that *'The contributor and his or her partners mutually believe that the partners have understood what the contributor meant to a criterion sufficient for current purposes'*. In practice achieving the criterion is not straightforward. One of the most obvious problems is that what A often takes to be common ground with B, may not match what B takes to be common ground between both of them. Such discrepancies between A and B can lead to misunderstandings. It is interesting to note that the criterion refers to *'belief'* alone and not *'knowledge'* and *'suppositions'*, as identified by (Clark, 1992). As understanding can never be perfect, the goal for participants is to mutually believe that the listeners understand what the speaker has meant well enough for current purposes. The grounding criterion is the measure for sufficient understanding.

Dix et al. (1998) shows that a conversation can simply be viewed as a sequence of utterances. So, when there are two subjects communicating together, A and B, A would say something, then B would say something, and then back to A. This process is called turn-taking and is one of the fundamental structures of conversation. Turn-taking is the process by which the roles of speaker and listener are exchanged. Back channels are often a crucial part of this process. Nods, grimaces, shrugs of the shoulder and small noises are called back channels. The existence of back channels means that the speaker can afford to be slightly vague, adding details until it is obvious that the listener understands.

Traum and Allen (1992) identify two levels of action that need to model the grounding process. Grounding acts is the first level of action and is performed at the level of a single utterance unit (the turn-taking acts are identified here) and the second level of action is referred to as the discourse unit. A discourse unit consists of a series of grounding acts performed by different conversational participants. According to Traum and Allen, common ground is built up at the discourse unit level. Seven acts to model the grounding process have been by identified by Traum and Allen.

Act number	Act identifier	Act description
1	Initiate	The initiator performs the act of initiation to start off the discourse unit. An initial utterance starts of the discussion
2	Continue	A continuation of a previous act performed by the same speaker
3	Acknowledge	To show understanding of a previous utterance. For example, repetition or paraphrase of all or part of an utterance, backchannel responses such as *'okay'* and *'uh-huh'*, and providing answer to questions
4	Repair	Changing the content of the current discourse unit by providing either a correction of something previously uttered, or the addition of omitted material that can change the interpretation of the speaker's intention
5	ReqRepair	A request for repair - usually asked for by another party. The listener is obliged to respond with either the requested repair, or to give some explicit refusal or postponement (e.g. A follow up request)
6	ReqAck	To get acknowledgement from a previous utterance. The listener is obliged to respond to the requested acknowledgement or to give some explicit refusal (e.g. A follow up repair or repair request)
7	Cancel	To close of the current discourse unit as ungrounded. This unit is abandoned but not repaired

Table 2.2: Traum and Allen's seven acts to model the grounding process

Table 2.3 summarises the seven possible states that a discourse unit can be in. I refers to the initiator and R is the responder.

State	Entering act	Preferred exiting act	Implied entering act meaning
S	-	$Initiate^{I}$	There is no utterance that has been initiated already
1	$Initiate^{I}$	Ack^{R}	Need an acknowledgement by the responder
2	$ReqRepair^{R}$	$Repair^{I}$	The respondent can also request a repair
3	$Repair^{R}$	Ack^{I}	The responder repairs directly, so the initiator acknowledges the repair
4	$ReqRepair^{I}$	$Repair^{R}$	Request for the responder to repair (problems with the respondent's utterance)
F	$Ack^{\{I,R\}}$	$Initiate^{\{I,R\}}$ (next discourse unit)	Utterance is grounded
D	$Cancel^{\{I,R\}}$	$Initiate^{\{I,R\}}$ next discourse unit)	Utterance is ungrounded

Table 2.3: Traum and Allen's seven states a discourse unit can be in

Section 2.1.1.2 has shown that Clark and Brennan (1991) state that contributing to conversation is made up of the presentation and acceptance phases, and both phases are required for a contribution to be complete. However, grounding becomes most evident in the acceptance phase. By the end of A's presentation of some utterance *u*, partner B may believe she is in one of the following states for all or part of *u* (Clark and Schaefer, 1992).

State 0: B didn't notice that A uttered any *u*

State 1: B notices that A uttered some *u* (but was not in state 2)

State 2: B correctly heard *u* (but was not in state 3)

State 3: B understood what A meant by *u*

However, states 0-3 are only applicable to face-to-face conversations. In media that is not cotemporal, there is the additional problem of A not having immediate evidence to what state B is in with respect to A's utterance. For example, in a medium such as e-mail, B's lack of response can be ambiguous. Did she not get the message, did she get it and not read it, did she read it and choose not to respond did she not understand it, or what? A would not know whether B is in state 0, 1, 2, or 3.

So far, this section has shown that common ground is achieved through the grounding process, and without grounding, common ground cannot be properly updated. The importance of back channel evidences was also examined. Clark and Brennan (1991) also drew to attention that contributing to conversations is made up of the presentation and acceptance phase, however, there is still a lack of insight on what types of evidences can reflect acceptance. For this reason, the following sections pay more attention on what types of evidences can be sought for agreement, disagreement and holding a neutral position. The three types of evidences will also be necessary to monitor grounding on a moment-by-moment basis for the states and sub-states which are characterised in the next chapter.

The next section looks at providing evidence for agreements.

2.2.2.1 Looking more closely at evidence of agreements

This section highlights in detail that authors use different terms to refer to different types of evidences which can be used for grounding. Some authors explicitly refer to grounding and others do not.

Utterances such as *'okay'*, *'uh-huh'*, *'right'*, *'yeah'* and *'mm-hm'* are referred to as back channel responses, all providing evidence of acknowledgements (Traum and Allen, 1992; Traum and Heeman, 1996; Clark and Brennan, 1991). They are commonly used to show understanding of a previous utterance and this was already brought to attention in section 2.2.2 . In addition, Clark and Brennan mentioned *'gosh'*, *'really' and 'good'* as additional types of back channel responses. Traum and his colleagues state that providing answers to questions can also be referred to as a back channel response. Allwood et al. (1993) simply refer to back channel responses as short morphemes, such as *'yes'*, *'no'* and *'m'*. This review shows the different types of evidences which can be found when examining back channel responses.

Initiation of the relevant next turn is also another common form of providing positive evidence for grounding (Clark and Brennan, 1991). So when there are two persons A and B interacting, if A is trying to ask B a question, if B understands it, they would be expected to answer it in their next turn. Repetition or paraphrase of all or part of an utterance can also provide acknowledgement (Clark and Schaefer, 1989). Traum and Heeman (1996) and Brennan and Ohaeri (1999) say that explicit acknowledgements include *'yeah'*, *'m-hm'*, *'right'* and *'okay'*. Additional explicit acknowledgements noted by Brennan and Ohaeri, but not mentioned by Traum and Heeman are *'yes'*, *'uh-huh'*, *'true'*, *'sounds good'* and *'I agree'*. Brennan and Ohaeri did not mention *'well'*, only Traum and Heeman did. According to Pomerantz (1996) acknowledgements such as *'uh huh' and 'mm hm'* are different forms of agreements. However, Traum and Heeman and Brennan and Ohaeri used the term acknowledgements. This review showed that authors use the terms agreements and acknowledgements to refer to evidence of understanding.

Allwood et al. (1993) in table 2.4 shows that listener responses *'Yes it is'*, *'No it isn't'* *'Yes I will'* and '*Yes I would*' can all be used to show acceptance and commitment of a preceding utterance.

Preceding utterance	**Listener's response**
	Yes (it is)
Pos statement:□It's raining	*Acceptance* of statement
Pos yes-no question:□Is it raining?	*Commitment* to positive fact
	No (it isn't)
Negative statement:□It isn't raining	*Acceptance* of statement (indicated belief)
Neg yes-no question:□Isn't it raining?	*Commitment* to positive fact
	Yes (I will)
Pos request:□Open the door!	*Acceptance* of request
	Yes (I would)
Pos offer:□Would you like some tea?	*Acceptance* of offer
Neg offer:□Wouldn't you like some tea?	*Acceptance* of offer

Table 2.4: Examples of preceding positive and negative utterances and listener responses

In addition, Allwood et al. (1993) examined effects of the factual polarity (positive or negative) of the preceding utterance on feedback. Utterances used for illustration were relatively simple and short in length. Each utterance was examined at the level of statements, questions, requests and offers. Allwood and colleagues show that listener response's to spoken utterances are indicated either positively *(yes ...)* or negatively *(no...)*. Table 2.4 suggests that it is the context of the preceding utterance that can guarantee a response such as *'No it isn't'* can be used to show acceptance and commitment of a preceding utterance. If a statement preceding a *'yes'* is positive, the *'yes'* signals acceptance of the statement. *'No...'* following a negative statement signals acceptance. Further, Allwood and colleagues recognise how vague the notion of acceptance is, and it's associations with utterances such as *'yes'*. This is because the utterance *'yes'* is often used to signal acceptance of continued communication rather than acceptance of perceived and understood content. Miller and Fox (2004) view *'yeah'* as providing evidence of acceptance, and *'yes'* to provide evidence of agreement. Baguley (2003) says that *'uh-huh'*or '*hmmm'* sounds indicate agreement, in contrast others use those utterances to show that they are listening and understanding what is being said to them. Similarly, Hirst et al. (1994) view acceptance as being associated with the understanding of the content. Such examples reinforce the view that grounding evidence must be interpreted with care, especially if drawing a distinction on what types of evidences different utterances provide.

Table 2.5 demonstrates the functions of *'yes'*, *'no'*, and '*m'* in relation to a preceding utterance. The boxes marked with – are examined separately as they do not deal with agreement.

Preceding utterance	**Listener response**			
	Yes	***No***	***M***	***Ok***
Pos statement: It's raining	*Acceptance* of statement (indicated belief)	-	*Confirmation* of understanding (indicated acceptance of statement)	*Agreement* (Acceptance of what has been said as a point of view of departure, more or less stipulatively)
Neg statement: It isn't raining	*Ambiguous* between rejection of statement (yes it is) and acceptance of statement (yes you are right)	*Acceptance* of statement (indicated belief)	*Confirmation* of understanding	*Agreement* (Acceptance of what has been said as a point of departure…)

Preceding utterance	**Listener response**			
	Yes	***No***	***M***	***Ok***
Neg yes-no question: Isn't it raining?	*Commitment* to positive fact	*Commitment* to negative fact	*Confirmation* of understanding (indicated commitment to positive fact)	*Agreement* (Acceptance of implicit suggestion)
Pos request: Open the door!	*Acceptance* of request	-	*Confirmation* of understanding (indicated acceptance of request)	*Agreement*
Neg request: Don't open the door!	*Unclear*	*Acceptance* of request	*Confirmation* of understanding (indicated acceptance of request)	*Agreement*
Pos offer: Would you like some tea?	*Acceptance* of offer	-	*Confirmation* of understanding (indicated acceptance of offer)	*Agreement*
Neg offer: Wouldn't you like some tea?	*Acceptance* of offer	-	*Confirmation* of understanding (indicated acceptance of offer)	*Agreement* (Indicated acceptance on the grounds of what has been said)

Table 2.5: Preceding utterances with four different listener responses

Allwood et al. (1993) reveal that evidences such as *'Yes...'* and *'No...'* shows acceptance and commitment. Hirst et al. (1994) has said that accept, in an acceptance plan can be realised by a *'yes'* or an *'emphatic okay'*. According to Cahn and Brennan (1999) *'Ok'* provides explicit acceptance of a presentation. Interestingly, McRoy (1995) provides two distinctions in which acceptances can be noted. The first is *explicit* (for example, some back channel device, such as nodding or saying *'okay'*), and the second is *implicit* (for example, the next relevant utterance). It also appears that Hirst and colleagues focussed only on explicit acceptances not implicit. Dix et al. (1998) to provide evidence of confirmation, for example, what was uttered was heard, and presumably understood, use the term *'yeah'*. Mulder (2000) demonstrates that the utterance *'ok'* can also be used for explicit confirmations. Martin and Rouncefield (2003) also use the terms *'that's right'* and *'okay'* as evidences of confirmation. This review shows that authors sometimes use identical terms but apply them in different contexts.

Confirmations are generally viewed as a reaction that can be indicated as an agreement (Mulder, 2000; Mulder et al. 2002). Simple feedback words, like *'yes'*, *'m'* and *'ok'* that frequently appear in spoken language systems and characterised by Allwood et al. (1993) shows that each word provides a different type of evidence. *'Yes'* provides evidence of acceptance; *'M'* provides evidence of confirmation and *'Ok'* provides evidence of *agreement.* Further, Sacks (1987) and Coulthard (1985) show that *'yuh'* and *'yes'* can be used to indicate evidence of agreement. Coulthard also suggests that the term *'right'* can be used instead of *'yes'*. Baker et al. (1999) believes that *'ok'* provides evidence of agreement as well. Veinott et al. (1999), based on their two categories, answers and acknowledgements, also refer to *'yep'* to provide evidence of *agreement* and *'ok'* and *'uh huh'* to provide evidence of acknowledgements (simple auditory signals confirming receipt of information, often following an instruction). *'Ok'* and *'uh-huh'* are commonly referred to in literature to also provide evidence of acknowledgements (for example, Traum and Allen, 1992; Traum and Heeman, 1996; Clark and Brennan, 1991). Coulthard says that the following

terms are also used to refer to acknowledgements, *'yes'*, *'yeah'*, *'oh dear'*, and *'is it really'*. An acknowledgement according to Brandle and Evens (1997) is anything that signals closure or lack of closure of a joint action. According to Mäkitalo et al. (2002) agreement can be a sign that common understanding is reached. However, Mäkitalo and colleagues did not define the term common understanding. Similar to above, this review shows that authors sometimes use identical terms but in different contexts, and do no just concentrate on providing evidences for acknowledgements.

Clark and Schaefer (1989) describe the term acknowledgement as a hierarchy of methods by which one conversant might signal that another's contribution has been understood well enough to allow the conversation to proceed. According to Clark and Schaefer and Ward and Heeman (2000) you can acknowledge a contribution by *'okay'* *'uh-huh'* and *'yes'*, or command for continuation by *'go on'*, *'next'* and *'continue'*. Clark and Brennan (1991) also report that gestures such as head nods have the same force as continuers. Ward and Heeman state that the determination as to whether a particular utterance constitutes an acknowledgement or a command is based primarily on word choice and dialogue context. As Nofsinger (1991) reports, *'uh-huh'* can be used to acknowledge a participant's utterance, *'yeah'* can be used for confirmation purposes, *'yeh'* can be used as an acknowledgement, and *'yeah'* can be used as an agreement token. Similiarly, Zaleznik and Moment (1964) use *'yeah'* and *'right'* to display evidence of agreeing.

Jurafsky et al. (1998) gathered together the most common lexical realisations for four dialogue acts (agreements, continuers, incipient speaker and yes-answer). Acts one (agreements) and four (yes-answers) do not require further explanations, as they are self-explanatory. However, acts two, *continuers* (short utterances, which indicate that the other speaker should go along speaking) and three *incipient speaker* (knowing whether a speaker is trying to take the floor) do require explanations. These four acts by Jurafsky and colleagues are related to speech acts of Searle (1971). Table 2.6 shows data collected from SWBD-DAMSL dialog act tagset, and the frequency of use for each of the four dialog acts as found in Jurafsky and colleagues data set. The agreement act in table 2.6 is particularly relevant, and shows the different ways in which evidence for agreements can be sought.

Agreements	**Continuer**	**Incipient speaker**	**Yes Answer**
Yeah 36%	*Uh-huh* 45%	*Yeah* 59%	*Yeah* 56%
Right 11%	*Yeah* 27%	*Uh-huh* 17%	*Yes* 17%
Yes 6%	*Right* 9%	*Right* 7%	*Uh-huh* 14%
That's right 6%	*Oh* 3%	*Okay* 3%	*Oh yeah* 4%
No 5%	*Yes* 1%	*Oh yeah* 2%	*Uh yeah* 1%
Uh-huh 4%	*Oh yeah* 1%	*Yes* 2%	*Oh yes* 1%
That's true 3%	*Okay* 1%	*(laugh) yeah* 1%	*Well yeah* 1%
Exactly 3%	*Um* 1%	*Oh* <1%	*Uh yes* <1%
Oh yeah 2%	*Sure* <1%	*Sure* <1%	*Yeah (laugh)* <1%
I know 2%	*Huh-uh* <1%	*No* <1%	*Um yeah* <1%
Sure 1%	*Huh* <1%	*Well yeah* <1%	*Yep* <1%
It is 1%	*Huh* <1%	*Really* <1%	*Yes (laugh)* <1%
Okay 1%	*Uh* <1%	*Huh* <1%	
Absolutely <1%	*Really* <1%	*Oh really* <1%	
I agree <1%	*Yeah (laugh)* <1%	*Oh okay* <1%	
(laugh) yeah <1%	*Oh uh-huh* <1%	*Huh-uh* <1%	
Oh yes <1%	*Oh okay* <1%	*Allright* <1%	

Table 2.6: Four dialog acts and evidences for each act

Jackson et al. (2000) also reported some interesting observations in their work. That is Jackson and colleagues have shown that when there are more than two people interacting together, everyone may not

provide evidence at all times. Therefore, when no evidence is provided, the speaker simply assumes that the listener had accepted what was said. The viewpoint silence assumes acceptance of what has been said is supported by others as well (for example, Novick et al. 1996; Carberry and Lambert, 1999). Hartley (1997) however reports that agreement must be treated with suspicion, as what may seem to be unanimous agreement may in fact disguise a silent minority. In addition, Baguley (2003) shows that when a pause is taken, it can signal a variety of reasons. For example, it can tell you that the other person is thinking; planning; anxious; uncertain or lacking in self-confidence.

Overall, this section has shown the different types of evidences which can be provided for agreements and acknowledgements. Back channel evidences were also examined in detail. Importantly, it was also shown that providing no evidence, automatically assumes evidence of what has been said.

The next section looks at evidence for disagreements.

2.2.2.2 Looking more closely at evidence of disagreements

Pomerantz (1996) says that disagreements (and agreements) are performed, by and large, with second assessments. Second assessments refer to the assessment made in a second turn, for example, by providing an answer to a question. Pomerantz also shows that when agreements and disagreements are included within a same turn, the agreement component is often conjoined with the disagreement component, using a contrast conjunction like *'but'*. However, it remains a puzzle why recipients agree with an assessment, and then shortly disagree with it. Therefore, anything that is said before terms such as *'but', 'except'* and *'however'* provide evidence of agreement, and what is said after provide evidence of disagreement (Pomerantz, 1996; Banerter, and Clark, 2003).

Sacks (1987) reports that components like *'well'* and *'I don't know'* at the beginning of an answer turn for example, characteristically precede something less than an agreement and can be a signal for the future forthcomingness of a disagreement. Pomerantz (1996) also supports this viewpoint by saying that one way of prefacing a disagreement is by using *'uh's', and 'well's',* to display reluctance or discomfort. According to Pomerantz, *'too'* is commonly referred to as same evaluation, when a recipient asserts the same evaluation as the prior speaker's evaluation. *'Too'* can be used both when agreeing and disagreeing with a speaker's previous utterance.

'I don't think', 'No, I'm not' and *'No'* can all be used to display evidence of disagreement (Pomerantz, 1996). Disagreements can also include negations like *'no', 'hm-mm'* and *'not'*. Brennan and Ohaeri (1999) in their transcripts of conversations found that people managed disagreements by using terms such as *'no', 'well'* and *'actually'*. Makitalo et al. (2002) reports that the following terms can also indicate disagreement *'Hrm, I don't know'* and *'I'm not certain I fully agree'*. In literature the term *'no'* appears the most frequently to provide evidence of disagreement (Coulthard, 1985). Coulthard also shows how *'Right'* can be used instead of *'no'* to display evidence of disagreement. In addition, Zaleznik and Moment (1964) demonstrate that terms such as *'I don't think...'* can be used for disagreeing as well. Hartley (1997) based on the work of Bales (1953) suggests that the term *'I don't know'* can be associated with Bale's category ten, to disagree. Also, Baguley (2003) has shown that simply saying *'I disagree*

with... ' signals disagreement. This review shows different types of evidence, all signaling disagreement with what has been said.

Table 2.7 shows positive and negative preceding utterances, consisting of statements, offers and requests and listener responses (Allwood et al. 1993).

Preceding utterance	**Listener's response**
	No (it isn't)
Pos statement: It's raining	*Rejection* of statement (indicated belief)
	Yes (it is)
Negative statement: It isn't raining	*Rejection* of statement
	No (I won't)
Pos request: Open the door!	*Refusal* of request
Neg Request: Don't open the door!	*Rejection* of request (defiance)
	No (I wouldn't)
Pos offer: Would you like some tea?	*Rejection* of offer (declination)
Neg offer: Wouldn't you like some tea?	*Rejection* of offer (declination)

Table 2.7: Three types of positive and negative preceding utterances with listener responses

Table 2.7 shows that when a statement is negative, *'yes... '* can signal objection and rejection of the proposed negative statement. Likewise a *'no... '* following a positive statement signals reflection of the statement. Related work by Allwood et al. (1993) further shows *'yes'*, *'no'*, and *'m'* in relation to preceding utterances. *'No'* is included in table 2.8. However, Allwood and colleagues do not refer to *'No'* in the manner of disagreement, but in terms of rejection and refusal for what has been said.

Preceding utterance	
	No
Pos statement: It's raining	*Rejection* of statement
Pos request: Open the door!	*Refusal* of request
Pos offer: Would you like some tea?	*Rejection* of offer
Neg offer: Wouldn't you like some tea?	*Rejection* of offer

Table 2.8: *'No'* in relation to mood and polarity of preceding utterances

Jurafsky et al. (1998) did not examine disagreements as part of the four dialog acts, which were examined. As shown in the preceding section they provided evidence of agreement in some detail.

Overall, this section shows that illustrations for disagreements are not found in the same level of detail as that for agreements as covered in the preceding section. However, similar to the types of evidences which are found for agreements, there are also a range of evidences which can be used for disagreements, but not at the same level of quantity.

The next section looks at evidence of holding a neutral position.

2.2.2.3 Looking more closely at evidence of holding a neutral position

Holding a neutral position is not found well covered in existing literature and the examples which have been studied to look at grounding evidences in detail. Identifying evidence of agreements and disagreements appears to be more common, however, with more variations and different types of evidences found to refer to agreements, although some authors draw distinctions and refer to them uniquely as either acknowledgement or acceptances. Although not specific to grounding evidences, Hindle (1998), when talking about negotiation brings to attention the body language, which can be observed, and the signals, which they give to show that they are remaining neutral. According to Hindle, the signal for remaining neutral can be observed by the following body language. Wide eyes and warm expression indicate willingness to be persuaded and open arms imply indecision. As this review of literature has shown, negotiation plays as important role in reaching mutual understanding (Mäkitalo et al. 2001; 2002) and in grounding (Baker et al. 1999)

The next section looks at grounding constraints.

2.2.2.4 Grounding constraints

Table 2.9 shows the framework constructed by Clark and Brennan (1991) to describe grounding constraints. Eight constraints have been identified that a medium may impose in communication between two people, A and B. *Copresence* – participants are in the same physical location; *visibility* - participants can see each other; a*udibility* - participants can hear each other; *cotemorality* – listeners receives when speaker produces message; *simultaneity* – participants can send and receive simultaneously; *sequentiality* – participants must take turns; *reviewability* – listener can review speakers message and *revisability* – speaker can revise messages before sending.

Grounding constraint	**Description**
Copresence	A and B share the same physical environment. When both are in the same surroundings they can see and hear what each other is doing and looking at.
Visibility	A and B are visible to one another. When both are face-to-face they can see each other. Videoconferencing allows the other person to see you, but they would not have all the information if you were copresent.
Audibility	A and B communicate by speaking. They can take note of timing and intonation. On the phone they can hear you but will not have all the information if you were copresent.
Cotemorality	B receives at roughly the same time as A produces. In most conversations, an utterance is produced just about when it is received and understood without delay. On the phone you understand what is said at the same time or very soon after it has been spoken. If communicating by email or letters this would not be the case.
Simultaneity	A and B can send and receive at once and simultaneously. When you are face to face you can nod or smile to show that you understand. Other devices may not allow this.
Sequentiality	A's and B's turns cannot get out of sequence. In face-to-face conversation, turns form a sequence that does not include intervening turns from different conversations with other people. With email, answering machines and letters, irrelevant messages or activities may separate a message and its reply.
Reviewability	B can review A's messages. Written material can be re-read and re-visited. Speech fades quickly.
Revisibility	A can revise messages for B. Media such as letters and email allows the participant to make revisions before it is sent.

Table 2.9: Clark and Brennan's eight constraints for grounding

To put the identified constraints into context, seven media are examined in table 2.10.

	Copresence	Visibility	Audibility	Cotemporality	Simultenity	Sequentaility	Reviewability	Revisability
Face-to-face	•	•	•	•	•	•		
Telephone			•	•	•	•		
Video teleconference		•	•	•	•	•		
Terminal teleconference				•		•	•	
Answering machine			•				•	
Electronic mail							•	•
Letters							•	•

Table 2.10: Clark and Brennan's chart of seven media with associated constraints for grounding identified

A comparison of text-based interactions with face-to-face interactions shows that grounding constraints are weaker in text-based than face-to-face interaction (Dix et al. 1998). Clark and Brennan (1991), also report that the lack of grounding constraints in text-based communication can make it more difficult to obtain common ground, particularly cotemporality, simultaneity and sequence.

The next section looks at repairs.

2.2.3 Repairs

The preceding section shows how different types of grounding evidences can be applied to provide evidence of understanding. This section looks at what happens when understanding is not reached at a particular time in conversation. In all forms of communication, evidence can also be provided to show that you have not understood what has been heard or read. Mulder (2004) says that in face-to-face communication, when trouble occurs, a repair is promptly initiated and carried out.

Clark and Wilkes-Gibbs (1986), looking at spoken utterances reveals that if the speaker recognises that the listener has not understood what has been said, the speaker can either expand their expression or repair the original expression. Grounding evidences displayed in tables 2.6 and 2.7 also include repairs and requests for repairs, highlighting that repairs can also form part of the grounding evidences, and does not have to appear on its own.

For the speaker to take necessary action requires the listener to provide evidence of non-understanding and not to assume that the speaker will be able to diagnose that there is a problem in the communication. Presented next is an example originally cited by Coulthard and Brazil (1984) representing a misunderstanding between two subjects A and B. Numbers 1, 2 and 3 on the left of A, B, A, refers to the line of that utterance.

1. A: So the meeting's on Friday.
2. B: Thanks.
3. A: No, I'm asking you.

The above example shows that B responded to line 1 with an acknowledgement, interpreting line 1 as an inform. However, A intended line 1 to be a yes-no question (presumably with an inform as the expected reply). Recognising B's misunderstanding, A produces a third-turn repair (so called because the repair is initiated in the third turn of the top-level sequence, counting from the misunderstood utterance) in line 3, telling B what action A had intended in line 1. Speaker A could also have also told B the intended goal (e.g., No, I want you to tell me). This simple example involving dyadic interactions demonstrates how a speaker made an utterance displaying her misunderstanding and initiated a sequence to resolve the misunderstanding.

Clark and Marshall (1992) identify that when a repair has to be made, the speaker has one of two options. The repair type can be either horizontal or vertical. A horizontal repair provides more information in the reference itself. A vertical repair strengthens the type of copresence on which their reference is based. Most repairs however are horizontal, as horizontal repairs ensure greater success by providing more precise information about the referent without changing the type of basis on which its identity becomes mutually known. Repairs therefore can play an important role in supporting the breakdown of a conversation. Speakers also have two strong preferences about repairs. First speakers prefer to repair their own utterances rather than let their interlocutors do it, and secondly speakers prefer to initiate their own repairs rather than let their interlocutors prompt them to do it. Identifying preferences is important, particularly when involved in collaboration and you may want to help repair a misunderstanding or non-understanding in the interaction.

Not understanding is a common problem, particularly in spoken conversations, because unlike writing, speakers have limited time for planning and revising their utterances. So, often the spoken utterances are not effectively communicated to the listener. Also, because speech is evanescent, the listener has to attend to, hear, and try to understand an utterance at virtually the same time that it is being issued. This requires a type of synchronisation that is not usually found in reading. Also, listeners in conversations are not mute or invisible. They can ask the speaker to alter what they are saying midcourse based on what the listeners say and do. For example, asking for corrections or clarifications (Clark and Wikes-Gibbs, 1986) highlighting some of the differences between spoken and text based interactions.

As a result of not recognising speaker intentions, misunderstandings can also take place. According to Hirst et al. (1994) a misunderstanding occurs when the listener interprets something to be complete and correct, but it is not what the speaker had intended. When a misunderstanding remains unnoticed in a conversation, the speaker and listener can talk at cross-purposes. At other times the conversation can break down, leading one participant or the other to determine that a misunderstanding has occurred. Misunderstandings can have profound consequences. Hirst and his colleagues have also revealed two types of misunderstandings which can occur, self-misunderstandings and other-misunderstandings. Self-misunderstandings are misunderstandings that are made and detected by the same participant. They occur when a participant finds that he cannot incorporate the other's new utterance into the discourse

coherently, unless he interprets one of the other earlier utterances differently. Other-misunderstandings are misunderstandings that are made by one participant but detected by another. They occur when a participant recognises that if one of his own acts had been interpreted differently, the other's utterances would have been the expected response to it. The participant might then attempt to change the other's interpretation. For example, he might restate his message, or explicitly tell the other that she has misunderstood, or might do nothing, perhaps to avoid social awkwardness.

The next section looks at how mutual understanding can be monitored.

2.3 How can mutual understanding be monitored?

Literature (Baker et al. 1998; 1999; Heeman et al. 1998; Paek and Horvitz, 1999; 2000) shows that common ground and grounding play an important role in mutual understanding. This suggests that common ground and grounding can be monitored to observe the evolution of mutual understanding in interactions. Techniques and evidences which can be used have been covered in the preceding sections and sub-sections. However, most of the examples which are used show interactions that are mainly dyadic, not identifying the challenges of seeking evidence of common ground and grounding when more than two persons are involved in the interaction.

Paek and Horvitz 's (2000) work also suggests how mutual understanding can be monitored, by making reference to contributions, and presentations and acceptances (Clark and Brennan, 1991). Paek and Horvitz say that to make a contribution to a conversation, participants do more than just produce the right utterance at the time, they also coordinate the presentation and acceptance of their utterances until they have reached a sufficient level of mutual understanding to move on. It is a level defined by the grounding criterion (Clark and Schaefer, 1992). In addition, participants (the speaker) also monitor the other participants (the listeners) to make sure that the utterances which were said was heard and understood well enough for current purposes. This process is known as feedback. When participants in a conversation understand each other, they signal this through acknowledgements, such as *'uh-huh'* or by moving on in the conversation. When uncertain about their own (the speaker's understanding) or that of other participants (the listener) they signal this by attempting to repair the situation. Conversation is therefore a collaborative effort, a type of joint activity in which partners coordinate the presentation and acceptance of their utterances to establish, maintain and confirm mutual understanding. The process by which this is achieved is called grounding and refraining from grounding can result in communication failure. High costs can also be associated with the repair, for example, time and effort.

The work of Mulder and her colleagues (Mulder and Swaak, 2000; Mulder et al. 2002) identify four categories or aspects by which mutual understanding can be monitored. However, although the categories or aspects were interesting, Mulder and her colleagues did not define the term mutual understanding. Mulder's work is both interesting and relevant as she is looking at teams, and not just dyadic interactions, providing a true insight into how mutual understanding evolves over a period of time. In addition, due to a lack of precise definition it is difficult to judge what situations can lead to growth and no growth in mutual understanding.

The next section examines mutual understanding in the context of teamwork.

2.4 Examining mutual understanding in the context of teamwork

The review of how mutual understanding is referred to in different sets of literature in sections 2.1.1.1-2.1.1.4 shows that the main focus has been on dyadic interactions. However, Mulder and Swaak (2000), Mulder et al. (2002) and Baker et al. (1999) and Pohl and Jacob's (1994) work can be viewed from a team context, as their data is based on more than two persons, implying that data was collected from a team.

This section looks more specifically at teamwork and draws on literature from teamwork and literature on mutual understanding and ingredients related to mutual understanding discussed in the preceding section and draws the literature together.

Teamwork is defined first.

2.4.1 Defining teamwork

The term team is not new and appears widely in literature. The first section and preceding sub-sections of this chapter suggests that dyadic interactions as reported in examples is not illustrative of teamwork. This is because teamwork assumes that there are more than two persons in the team. To identify the characteristics of a team, five definitions are examined (Robbins and Finley; 2000; Katzenbach and Smith, 1993; Bowditch and Buono, 2001; Carmel, 1999; Humphries, 1998).

Robbins and Finley (2000) say that a team is easily defined as *"people doing something." The something that a team does isn't what makes it a team the together part is. The stated purpose for a team is to gather people together and collaborate jointly accomplish agreed-upon team outcomes; in other words get things done.*

Katzenbach and Smith (1993) have defined a team as *'A small number of people with complementary skills who are committed to a common purpose, performance goals, and common approach for which they hold themselves mutually accountable.'*

Bowditch and Buono (2001) say *'A distinguishable set of people who (1) interact with each other – dynamically, interdependently, and adaptively, (2) who work towards a common and valued goal, and (3) who each have specific roles or functions to perform'.*

According to Carmel (1999) a *"real"* team is:

- perceived to be a team by its members,
- is recognised as a team by non-members (i.e., it has a boundary, people know who is a member and who is not),
- has collective responsibility for its products,
- shares responsibility for managing its work,
- has a common goal or set of tasks,
- works together on tasks that are interdependent,
- demands peak performance from all members (rather than just some),
- shares its rewards, and

- is small in numbers of members.

Humphries (1998) say *'A team is a group of people working together to achieve common objectives and willing to commit all their energies necessary to ensuring that the objectives are achieved'.*

Only Humphries' (1998) definition mentioned team size. Size was not mentioned in the following definitions (Robbins and Finley, 2000; Katzenbach and Smith, 1993; Bowditch and Buono, 2001; Carmel, 1999), however, there is no clear indicator of how many people are necessary to form a team. Carmel (1999) mentions a small size, but does not mention a number. Similarly, Bowditch and Buono (2001) does not mention the number of people that need to work together before it can be referred to as a team. Carmel only mentioned that the team should be small in size. Bowditch and Buono did not raise the issue of team size in their definition or discussion of what constitutes a team.

Interestingly, Robbins and Finley (2000) say that two or more persons forms a team, but do not state the upper limit. According to Krauss and Fussell (1990) one or more persons can form a team. Both definitions (Robbins and Finley, 2000; Krauss and Fussell, 1990) did not mention an upper limit that is necessary in order to be referred to as a team. The discussion by Katzenbach and Smith (1993) was more detailed than the previous two (Robbins and Finley, 2000; Krauss and Fussell, 1990), as the upper and lower size limit of what constitutes a small team was defined.

According to Katzenbach and Smith (1993) the small number could be anywhere from two to 25 members, with between five and nine as manageable and optimal. Katzenbach and Smith argues that if the number goes above nine, communication tends to become centralized because members do not have an adequate opportunity to speak to each other and extra time and effort is required to ensure good communication.

Looking at other similarities amongst the definitions (Robbins and Finley, 2000; Katzenbach and Smith, 1993; Bowditch and Buono, 2001; Carmel, 1999), yields the following constituent characteristics that are important when referring to a team:

- gathering a small number of people together,
- having complementary skills,
- identifying roles,
- collaborating jointly, and
- working towards agreed upon goals or outcomes

Katzenbach and Smith (1993) sum up the main reasons for introducing a team. *'Teams outperform individuals acting alone or in larger organizational groupings, especially when performance requires multiple skills, judgements and experiences'.* Johnson and Johnson (1994) also support Katzenbach and Smith by stating that a team should be formed to work on a task that requires more than individual effort.

Diversity of knowledge was picked out as one of the main reasons for being part of a team according to Robbins and Finley (2000). These three references (Katzenbach and Smith, 1993; Johnson and Johnson, 1994; Robbins and Finley, 2000) alone show that there is some merit to working in a team, which

individuals alone cannot achieve. However, it is interesting to note how none of the above authors identified the need to have mutual understanding when working as part of a team.

The next section looks at defining multidisciplinary teamwork.

2.4.1.1 Defining multidisciplinary teamwork

Literature (for example, Preece et al. 2002; Milne and Leifer, 2000; Milne, 2000; Rauch et al. 1996) suggests that a team is multidisciplinary when different fields work together. Preece et al. (2002) says that interaction design is multidisciplinary and requires the following interdisciplinary fields. Academic disciplines (for example, information and engineering); human factors; cognitive engineering; human computer interaction; cognitive ergonomics; computer supported cooperative work; information systems and design practices (for example, graphic design and film industry). According to Milne and Leifer (2000) and Milne (2000) product design is a multidisciplinary activity which includes fields of engineering, material science and computer science. Rauch et al. (1996) shares that user centered design is another multidisciplinary activity. The VisualAge and BookManager user centered design teams were formed from many disciplines, graphic design, programming, marketing, human factors, information development and customer service. The authors referenced here do not mention the maximum or minimum number of fields or disciplines which are required before a team can be referred to as multidisciplinary.

Benefits can be realised from working as a multidisciplinary team. As a result of different backgrounds and training in a multidisciplinary team, more ideas become generated and new methods are developed (Preece et al. 2002). In addition multidisciplinary design teams are now increasingly being adopted in less-technical design domains as the days of the genius individual designer have disappeared. Mulder (2004) reports that multidisciplinary teams appear to be a good solution for coping with complexity because the team members have different perspectives on the problem, because their individual knowledge and skills differ, and because their approaches to solving the problems are different. In such teams, team members must share their knowledge, views and perspectives in order to construct new understandings. Most of the time these team members do not know each other beforehand, because they are specially selected based on their expert knowledge, their creativity, and their capacity to be innovative in order to make the team multidisciplinary. Mulder when discussing multidisciplinary teams based her opinions on the following work (Vissers, 2001; Maitland, 2002).

However, challenges can also be experienced when team members are from different fields and disciplines. This is covered in more detail in section 2.4.3.

Other authors (Boddy, 2001; Olivera and Argote, 1999) do not specifically refer to the term 'multidisciplinary' in their work, however their work implies that they are referring to a multidisciplinary project team. Boddy says project teams are often drawn from people with different background, who would have different expectation of what the project is trying to achieve. According to Boddy, clarifying and agreeing problems is a common problem which teams face. Olivera and Argote (1999) mentions that product development is a group activity requiring the involvement of individuals with different types of expertise and from multiple functional areas in the organisation. Developing products therefore requires

linking of capabilities of several functional areas in the organisation and the team is diverse. For example, a team developing a personal computer would involve individuals from engineering, manufacturing health and safety, research and development, and legal departments. Mutual understanding, common ground, grounding, mutual knowledge, mutual beliefs and repairs were not mentioned when looking at the definition of a multidisciplinary team.

The next section briefly mentions team dynamics and team member roles.

2.4.2 Team dynamics and roles

Tuckman's (1965) easy to follow model of group development is widely discussed in literature (Bowditch and Buono, 2001; Stewart et al. 1999; Carmel 1999; Robbins and Finley, 2000; Boddy, 2002). Tuckman's model shows that groups go through a number of developmental phases over time. When a group is initially formed, the dynamics and processes underlying the interaction between its members are quite different from the patterns that would be expected after the group has been in existence for a longer period of time. Robbins and Finley (2000) only identify four phases not five. The fifth phase adjourning is not mentioned. A successful team moves back and forth between the different phases, especially when circumstances change in the team. The five phases are described in more detail in table 2.11.

Phase	Description
Forming:	During the forming phase team members find out what they will be doing, the styles of leadership that are acceptable, and the kinds of interpersonal and task relationships that are possible. Courtesy, confusion, caution, and commonality typically mark this phase of team development.
Storming:	During the storming phase individual styles come into conflict. There may be conflict over competing approaches to reaching the team's goals. Tension, criticism and confrontation between members characterise this phase.
Norming:	During the norming phase, resistance is overcome as the team establishes its rules and standards, develops intragroup cohesiveness, and delineates task standards and expectations. Cooperation, collaboration, cohesion and commitment mark this phase. On one level, the norming process begins almost immediately when a team is formed as members try to determine which behaviors are acceptable.
Performing:	When teams are at the performing phase, it is ready to focus its attention on accomplishing its tasks. Typical characteristics of this phase include challenge, creativity, group consciousness, and consideration among members.
Adjourning:	Teams do not last forever. Compromise, communication, consensus and closure mark this final phase.

Table 2.11: Five phases of Tuckman's group development model

Although Tuckman's five phases of group development are distinct, differences in backgrounds, and experiences can make it harder to model the different stages that the team members go through (McDonough et al. 2001). McDonough and her colleagues referred to this complexity in the context of global teams, where individuals work and live in different countries and is culturally diverse.

Boddy (2002) using the theory that groups potentially pass through five stages of growth and development by Tuckman and Jensen (1977) depict the idealised stages of group development. This is shown in figure 2.2.

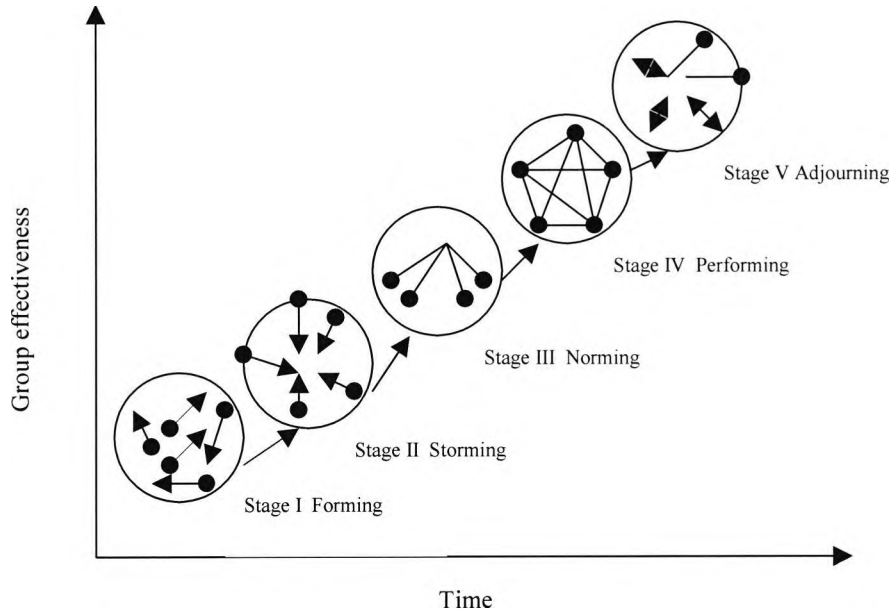


Figure 2.2: Idealised stages of group development

According to Boddy (2002) in the *forming* stage members choose, or is told, to join a team. Managers may select them for their functional and technical expertise or for some other skill they bring. They come together and begin to find out who the other members are, exchanging fairly superficial information about themselves, and beginning to offer ideas about what the group should do. People are trying to make an impression on the group, and to establish their identity with other members. At this stage, especially if they are inexperienced at teamwork, they may have few ideas about the processes the team should use to complete the task. A project manager may be able to help the process by initiating some exploratory discussions here about how members expect or want the team to work, or about previous experiences of team working from which this team can learn. Conflicts may occur in the *storming* stage, which can be an uncomfortable one for members. As the group gets down to the actual work, members begin to express differences of interest that they withheld or did not recognise at the forming stage. People realise that others want different things from the group, or have other priorities, and perhaps hidden agendas. Members may express contrasting views on how the group should work, with some expecting the formal leader to give clear directions, while others perhaps expect a more participative approach. Some may experience conflicts between the time that they are spending with the group, and other calls on their time. As they work, differences in the values and norms which people have brought to the team become closer. Some groups never satisfactorily pass this stage, especially if they accommodate or repress differences, rather than acknowledging and discussing them openly. Movement to the next stage of development only happens when one or more team members do or say something that leads the group to the next stage. If the group does not surface and confront disagreements it will probably remain at the forming or storming stage. It will probably do no significant work, and fall further behind more successful teams. The project manager (or other skilled members) play a critical role here, in helping the team to face these difficulties, and so begin to move to the next stage.

In the *norming* stage, the members are beginning to accommodate differences constructively, and establish adequate ways of working together. They develop a set of shared norms, expected modes of behaviour, about how they should interact with each other, how they should approach the task and how

they should deal with differences. People create or accept roles so that responsibilities are clear, either when the leader formally establishes them, or as members accept or create them during early meetings. Members may establish a common language to guide the group and allow members to work together effectively.

In the *performing* stage the group is working well, gets on with the job to the required standard and achieves its objectives. Not all groups get this far, especially if they failed to pass the storming phase.

Lastly, in the *adjourning* phase the group completes it tasks and disbands. Members may reflect on how the group performed, and identify lessons for future tasks. Some groups disband because they are clearly not able to do the job, and agree to stop the meeting.

Thus, Boddy (2002) draws to attention that a project group which survives goes through those stages many times in the course of its life. As new members join, as others leave, as circumstances or the task change, new tensions arise which take the group back to an earlier stage. A new member implies that the team needs to revisit, however briefly, the forming and norming stages. This ensures the new member is brought psychologically into the team, and understands how they are expected to behave. A change in task or a conflict over priorities can take a group back to the storming stage, from which it needs to work forward again. The process will be more like that in figure 2.3 than the linear progression implied by the original theory, and described in detail above.

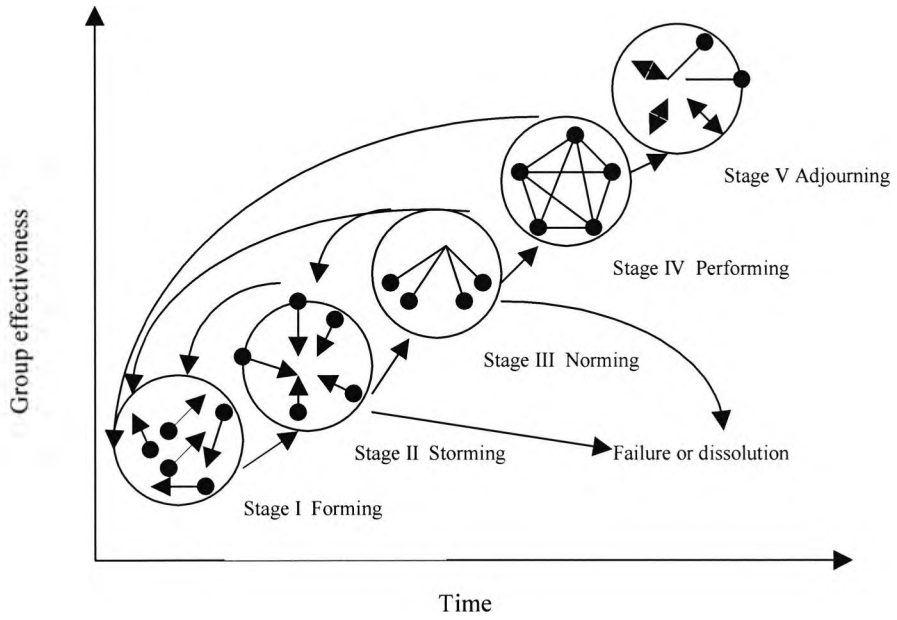


Figure 2.3: Stages of group development in practice

Dynamics can also be affected by factors such as culture and common ground (Cogburn et al. 2002). Common ground of knowledge is required in order for two or more people to understand each other (Clark, 1992). The degree of ease or difficulty of establishing common ground within a group can be affected by shared cultural background, experiences, previous conversations and surroundings (Cogburn et al. 2002). It is important to establish common ground, and not take it for granted. In addition, distributed teams may have less initial common ground, and constraints of computer mediated communication may make it more difficult to identify or build common ground than in face-to-face teams. Cogburn and their colleagues defined a globally distributed team as an event conducted across

multiple time zones, countries and cultures. Cogburn and his colleagues interestingly mention common ground when talking about teams. Section 2.2.1 shows that common ground is not always examined in a teamwork context. This work focussed on a group. Interestingly, Cramton (2001) defines the characteristics of a distributed work group as more simpler than that of Cogburn and their colleagues. Cramton said that distributed work groups incorporates members who are based at locations remote from each other.

McDonough et al. (2001) reports that global teams, a team, which is comprised of individuals who work and live in different countries and are culturally diverse, complicates the human relation dynamics on the team because team members have different backgrounds and the lack of shared beliefs and experiences. A team of this make up can also make it harder to model the different stages that the team members go through. Sole and Applegate (2000) suggest that effective knowledge sharing in dispersed, cross-functional teams is likely to be neither simple nor effortless, especially during the early stages of group development. Lastly, Finholt et al. (1990) interestingly report that over time, skills and information of group members become more group specific and norms more implicit. As a result there is less communication on how to work together and more on the work itself.

Boddy (2002) based on the work of Uhk-Bien and Graen (1998) has compared functional and cross-functional teams. Table 2.12 compares these two types of teams.

	Functional Teams	**Cross-Functional Teams**
Skills and expertise	Similar	Varied
Work processes of leaders and members	Compatible because of similar backgrounds	Incompatible - leaders lack expertise to guide all members
Communication	Not inhibited by structural constraints	More potential conflict from diverse perspectives
Leaders	Have technical or professional authority - can acts as supervisors	Lack technical authority – act as coaches, coordinators and facilitators
Problem-solving	Technically supervised, can be guided by leaders' expertise	Requires interdependent work processes and personal commitment of team members

Table 2.12: Comparing functional and non-functional teams

Literature also defines roles that team members can adopt when working as part of a team (for example, Belbin, 1998; Boddy, 2002). According to Boddy, Belbin reports that the balance of roles in a group affect how well or badly it performs. Observations (for example, Belbin, 1993) show that the composition of teams is crucial to their success, as members play a range of roles. Winning teams have an appropriate balance and losing teams are unbalanced. Nine roles identified by Belbin are: implementer; coordinator; shaper; plant; resource investigator; monitor-evaluator; teamworker; completer and specialist. Boddy's examples of task roles are: initiator; information seeker; diagnoser; opinion seeker; evaluator and decision manager. Examples of maintenance roles by Boddy are: encourager; compromiser; peacekeeper; clarifier; summariser and standard setter.

Using the work of Belbin (1993), Boddy (2002) reports on Belbin's successful and unsuccessful teams. Particularly successful teams were those that had a capable coordinator; a strong plant – a creative and clever source of ideas; at least one other clever person to act as a stimulus to the plant and a monitor-evaluator – someone to find flaws in proposals before it was too late. Ineffective teams usually had a severe imbalance, such as: a coordinator with two dominant shapers – because the coordinator will almost certainly not be allowed to take that role; two resource investigators and two plants - because no one

listens or turns ideas into action and a completer with monitor-evaluators and implementers – probably slow to progress and stuck in detail. Further, Belbin and colleagues did not suggest that all teams should have nine people, each with a different preferred team role. Rather, their point was that the composition of the team should reflect the task in hand.

Dix et al. (1998) has brought to attention that when talking about a group, roles and relationships may change within the lifetime of a task and even within a single work session, so the naming of roles can cause problems. Departure of team members can also result in roles being reallocated or additional roles being assigned to members. Gorla and Wah Lam (2004) report that one of the main factors contributing to poor performance is software project team composition. Others (Rettig, 1990) identify roles for the success of any software team, but is not restricted to team member roles. Team composition and roles can display interesting insights.

The next section looks at the challenges of teamwork.

2.4.3 Challenges of teamwork

Preece et al. (2002) reports that as a result of multidisciplinary teams including different backgrounds in a design team, the more difficult it can be to communicate and progress forward the designs being generated. The main reason is that people with different backgrounds have different perspectives and ways of seeing and talking about the world. What one person values as important others may not even see (Kim, 1990). Not only are there differences in perspectives, terms can also be interpreted differently, depending on what discipline or field you belong to. Different fields and disciplines can use the same terms but to mean different things (Grudin, 1994). This is one of the most common causes of problems reported when working in a multidisciplinary team, causing confusion, misunderstandings and communication breakdowns. In addition, Lambourne et al. (1997) report that multidisciplinary teams experienced difficulties, including team members of the project not always having a clear idea of who needed what information, when and in what form.

Rauch et al. (1996) reports that the ability to communicate among the multidisciplinary team is challenging due to the nature of the team. This work mentions that as a result of including individuals from different backgrounds, there may be different traditions of formal training and styles of work. Rauch and their colleagues suggest that anyone involved in multidisciplinary work maintain respect for the diversity of approaches that can be brought together to achieve a common goal.

Scaife et al. (1994) who examined the production of a tool for fashion designers, illustrate that there are a number of difficulties preventing a team that is composed of members from different disciplines from successfully communicating ideas between each other. Their study examines the collaboration between computer scientists and a field research team with backgrounds in psychology and cognitive science. The reported team encounters a number of problems: how to relate observation of work practices to design decisions, how to manage responsibilities within the team, what priorities to adopt in development and how to involve users in prototyping. Many of the difficulties stem from the differing backgrounds and their assumptions about good practices and what the correct way of working should be.

Olivera and Argote (1999) in the context of cross-functional teams, pose several challenges. Although functional diversity can increase the amount of information and mix of skills the team has available, it can also hinder the team's internal processes by complicating internal communication. Although Boddy (2002) talks about teams, his discussion was not restricted to just cross-functional teams. However, Boddy says that teams are essentially collection of differences, and although that is one of the advantages, that diversity is not easy to manage.

Cramton (1997; 2001; 2002) explores the challenges of communication and collaboration under dispersed and technology mediated conditions. Her findings report that dispersed collaboration is not easy and found that there are five types of mutual knowledge problems that exist in dispersed collaboration. Cramton (2002) defines mutual knowledge as *"knowledge that the parties to a communication share in common and know they share in common"*. She also reports that mutual knowledge is sometimes referred to as common ground. Studying 13 geographically dispersed teams identified the problems. The teams consisted of students located at nine universities on three continents. The make up of the team suggests that it was multidisciplinary. Cramton (2002) did not explicate that the team was multidisciplinary. Cramton's (2002) work reveals five serious problems in the way the dispersed groups exchange information. The problems are summarised in table 2.13.

Failure to communicate contextual information By definition, members of a dispersed team work from different locations. Sometimes they also are members of different organisations. Accordingly, there may be important differences in the contexts in which they operate. However, it proved to be difficult for team members to gather and retain information about the context in which their distant partners worked. Team members often failed to communicate important information about their own context and constraints to their remote partners. The teams involved in the project, including the dispersed faculty team, sometimes failed to recognise differences across sites in deadlines for deliverables, evaluation criteria, and the timing of spring breaks.
Difficulty in communicating the salience of information Teams encountered problems that hinged on difficulty in communicating the salience of information. Writers often assumed that what was salient to them would be salient to their readers. Tone of voice, facial expressions and body language add meaning to communication. Electronic communication proved to require skills for directing attention that many team members did not have. For example, when e-mail messages addressed several topics, partners sometimes differed in which they found most salient.
Unevenly distributed information Unevenly distributed information interferes with team-level collaboration and can cause problems in relationships. Two causes were errors in e-mail addresses and failure to send copies of mail to all members. Different perspectives exist between members because of the differences in the information that they have received. Problems stemming from unevenly distributed information was not limited to cases involving error in addressees and undelivered mail. Sometimes people knew they were exchanging mail with only a part of the team, but failed to understand how that affected the perspectives of team members who did not receive the mail, or how it affected the dynamics of the team as a whole.
Differences in speed of access to information Differences among team members in their speed of access to information. Some members have 24 hour access to e-mail, while others do not. If some members see e-mail only once a day, this limits the amount of interaction that is possible, and slows the pace of the team. A variation of this issue is concerned relative differences in the speed of electronic transmissions among parts of the team.
Difficulty in interpreting the meaning of silence One of the biggest challenges team members faced was interpreting the meaning of their partner's silence. Silence due to technical problems or faulty information sometimes was often misunderstood as intentional non-participation.

Table 2.13: Cramton's five problems in dispersed collaboration

Cramton (2002) reports that failure to establish mutual knowledge damages trust and can destroy collaboration. Her research shows that for failure to communicate and remember contextual information, dispersed partners often fail to anticipate which features of their local situation differ significantly from remote situations and communicate this information, leading to misunderstandings. Sometimes the source of the misunderstanding is not discovered, and people draw negative conclusions about each other.

It also appears that when contextual information is communicated, remote partners find it difficult to remember. Because dispersed collaborators do not stand on common ground, they tend to lack mutual knowledge of information aspects of each other's situation.

Unevenly distributed information stems from human and technical errors in information distribution and choices people made without realising all consequences. In the teams studied wildly different perspectives among team members evolved because of differences in the information they received. Team members lack mutual knowledge in this situation.

Differences in what information is salient is also another problem which was observed with the dispersed collaborators studied. The collaborators assume that what was salient to them, would also be salient to their remote partners. Even when partners posses the same information, they can still lack mutual knowledge because they differ in what parts of long e-mail messages are salient to them. Restricted cues and laborious or slow feedback make it difficult for dispersed collaborators to carry out the process of confirmation that establishes mutual knowledge.

Differences in speed and timing shows that it is not only slow feedback that challenges dispersed teams, but also differences in the relative speed of communication among parts of a group.

Lastly, uncertainly about the meaning of silence, is one of the biggest challenges faced by the dispersed team members.

The next section looks at team member interactions.

2.4.4 Team member interactions

Advancements in information and communication technologies enable people to work together on projects across geographies and organisations, often involving people from multiple disciplines and functions to work together on particular opportunities (Larsson, 2003). This means that there are increasingly more teams that are working together that are dispersed (Kraut et al. 2003; Carmel, 1999; Olson and Olson, 2000). As a result opportunities to meet face-to-face become lower due to the high costs in attending meetings. However, Mulder (2004), using Kuiper's (2002) work highlights that people still prefer face-to-face collaboration, and seem to be prepared to put up with long travel times and the relevant travel costs. Although work activities can be performed when team members are not face-to-face, the findings from a study (Veinott et al. 1999) conducted show an interesting conclusion, which may affect how team members communicate and collaborate when using other medium. Although the following investigation which is reported looked at dyadic interactions, the results which are gathered are of interest to teamwork. The results from Veinott et al. (1999) shows that video helps remote workers achieve common ground more successfully as a result of team members being able to see each other Similar to Veinott and her colleagues conclusions, McCarthy et al. (1991) has shown that achieving common ground in text-only communication is more difficult. This is because of grounding constraints, copresence and visibility which is not available in text-based communication.

Mulder et al. (2002) who looked at technology mediated team interactions found that members need a certain amount of shared/mutual understanding on the content (task/domain interactions), the procedure

(planning of activities), each other (social interactions and relationships), and on the use of communication technology. Their findings were interesting as they showed in detail how different categories or aspects of shared/mutual understanding change over time.

Strauss and Olivera (2000) stress that common ground, defined in the same manner as (Clark, 1992) is necessary for team members to understand each other. However in virtual teams, attaining common ground can be difficult because of the costs associated with articulating detailed information, but also because of a lack of nonverbal and paraverbal cues making it difficult to convey meaning. Mulder (2004) based on the following work (O'Hara-Devereaux and Johnson, 1994; Tarvenpaer and Leidner, 1998) report some of the problems that virtual teams encounter. Problems virtual team cope with include lack of trust, lack of shared background knowledge, co-ordination difficulties, difficulties resulting from having to learn new ways to behave and interact, and difficulties because there are no face-to-face encounters. Olson and Olson (2002) report that when teams are fully collocated (which according to them is when team members are at the same physical location where co-workers can go to each other's workspaces within a 30 metres walk because they have travelled to a common location, or permanently because they are at a common site), reveal that it is relatively easy to establish common ground. Co-workers share not only cultural and local context, but more microcontext of who is doing what at that moment and what remains to be done as well.

This section shows that common ground did not frequently appear in literature, exceptions included (Strauss and Olivera, 2000; Olson and Olson, 2002). Section 2.2.1 did show the importance of achieving common ground, but was not always mention in a teamwork context. This section supports the view that some authors do look at common ground and identify challenges in establishing common ground in different types of settings.

The next section looks at face-to-face interactions in more detail.

2.4.4.1 Face-to-face interactions

Veinott et al. (1999) implies that face-to-face communication can detect confusion almost straight away, and repairs can be made to aid mutual understanding. Although this point was made in relation to dyadic interactions, it is mentioned here as it shows the benefits of holding face-to-face interactions.

Holding face-to-face meetings is still considered one of the primary mechanisms for communication across the entire group, but the task of organising and executing an effective meeting can be time consuming and difficult (Cook et al. 1987). Boddy (2002) also brings to attention that project managers secure, send and receive most of their information through informal, face-to-face-communication. Boddy's work therefore further emphasises the importance of face-to-face meetings and the sharing of information. Boddy also draws to attention that as projects grow, it becomes progressively more difficult to rely on informal channels of communication. Thus project managers find benefit in building formal means of passing and receiving information – to staff or users, to colleagues, and to senior managers. These help to ensure that all have a common set of information to work from. Meeting failures can also occur as a result of inadequate meetings, notes and vague action items. In addition, poor communication and disagreement at meetings can result in inconsistent designs, frustrated efforts, lowered morale and

ultimately project failure (Cook et al. 1987). Not only do the failures suggested by Cook and his colleagues need to be addressed to hold an effective meeting, but additional challenges can be encountered when trying to organise a meeting in the first place. As team members are often part of more than one project team, and have to balance competing demands from other teams that they belong too arranging meetings can be difficult. Meetings can also be difficult to co-ordinate when the team in question is distributed (Törlind and Larsson, 2002).

Factors affecting the success of meetings have been identified by Boddy (2002). These are listed in table 2.14.

Meetings are more likely to succeed if:	**Meetings are more likely to fail if:**
• They are scheduled well in advance	• Are fixed at short notice (absentees)
• Have an agenda, with relevant papers distributed in advance	• Have no agenda or papers (no preparation, lack of focus, discussion longer)
• Have a starting and finishing time	• Are of indefinite length (discussion drifts as people raise irrelevant issues or repeat themselves)
• Follow prearranged time limits on each item	• Time is lost, and important items are not dealt with (delay, and require a further meeting)
• Decisions recorded and circulated within 24 hours	• Decisions lack clarity (misunderstanding what was agreed, delay, reopening issues)

Table 2.14: Five factors affecting the success of meetings

Smith and Blanck (2002) suggests that face-to-face meetings are essential for the beginning of a project or for times of conflict. Smith and Blanck also say that the expense of a face-to-face meeting can be quickly mitigated because mutual understanding of the differences can prevent delays, misunderstandings and mistakes that can grow worse as they fester. Although this reference shows the use of mutual understanding, it is a term which is not defined by its authors. Cook et al. (1987) have shown that meetings constitute an important part of the software design and development environment and is used to explore ideas, resolve disagreements, and enhance teamwork to achieve its goals.

O'Hara-Devereaux and Johansen (1994) talks about the benefits of attending face-to-face meetings, but in the context of building interpersonal bonds and establishing trust. Olson and Olson (1992) performed detailed analysis on face-to-face meetings to show how time is spent during a meeting. Interesting findings were reported by Olson and Olson.

Face-to-face interactions often considered one of the most powerful forms of interactions also encounter some problems. Bowditch and Buono (2001) report that even in relatively simple face-to-face interactions, involving two persons, while the speaker is talking, the listener is likely to be thinking about the response which they will give, rather than really listening to what the speaker is saying. This suggests that information communicated face-to-face may not always be effective.

The next section looks at e-mail interactions

2.4.4.2 E-mail interactions

E-mail is an example of asynchronous technology. This means that both parties to a communication, more specifically the sender and the receiver do not need to attend or be available simultaneously for it to occur (Sproull and Kiesler, 1988; Carmel, 1999). However, authors such as Stenmark (1998) question if e-mail can still be considered asynchronous as some messages are replied back almost immediately once

they have been received. Murakoshi and Ochimizu (1998) when referring to e-mail communication assume that participants deal with parallel topic developments, especially when participants send and receive e-mail messages asynchronously.

Mulder (2004) based on the following work (Dennis, Valacich et al. 1998) mentions that when discussing the issue of understanding one another, the media synchronicity theory states that, synchronous communication is more suitable for convergence processes, such as the development of shared meaning. Asynchronous communication, by contrast, better supports the exchange of information.

Bowditch and Buono (2001) report that people are more likely to respond more quickly to e-mails in the 'heat of the moment' compared to other forms of communication. Similar to Bowditch and Buono's comment, Berghel (1997) reports that one normally cannot ignore e-mail. Lane (1990) also questioned the frequency of receivers checking their mailbox, and the effectiveness of using e-mail as a mode of communication was dependent on the recipient regularly checking their mailbox, otherwise messages would sit in it unread. Cramton (2002) reveals that the problem of unevenly distributed information can arise in teamwork when an e-mail inbox is not checked. Literature has not examined the effects of messages remaining in the inbox which remain unread.

E-mail is a popular communication tool, and is used by teams to communicate with a few members or the entire team. Distribution lists can also be produced to send one message to multiple receivers (Finholt et al. 1990). Whelan (2000) investigates the uses of e-mail in business, reporting that e-mail is a quick, convenient, easy to use, low cost way of communicating both internally and externally and businesses should use it. However, the volume of e-mail messages sent can be overwhelming for some team members (Cole and Johnson, 1996). According to O'Hara-Devereaux and Johansen (1994) e-mail is the most useful support to a team member, especially when team members are working at a distance.

Cole and Johnson (1996) report that e-mail is becoming the principle vehicle for sharing information and coordinating action. Dix et al. (1998) also reports that e-mail is being increasingly used within organisations for passing critical information or making important decisions. Robbins and Finley (2000) provide further insight into how e-mail is used, reporting that e-mail is a common way for people to share news of their progress or lack of progress. Messages can also be sent that is for your information (FYI) (Stenmark, 1998, referring to the work of Ljungberg, 1997).

Ducheneaut and Bellotti (2003) highlight that there is usually enough shared context among collaborators to make overly explicit and heavyweight textual reference unnecessary. This is because e-mail conversations are grounded in sufficient mutual knowledge (Clark, 1992) to allow brief, sketchy, and implicit references to succeed without posing significant problems in interpretation. Talking about things is not done in a vacuum and common understanding often need not be painfully re-established over time. It is interesting to see that Ducheneaut and Bellotti refer to Clark's work on mutual knowledge in the context of e-mail communication. In addition, the problem of unevenly distributed information (Cramton, 2002) was also identified in the context of mutual knowledge.

The next section compares face-to-face and e-mail interactions.

2.4.4.3 Comparing face-to-face and e-mail interactions

Literature (Finholt et al. 1990; Bowditch and Buono, 2001; Sproull and Kielser, 1998; Cogburn et al. 2002) suggests that face-to-face communication is the preferred form of interaction. Finholt et al. (1990) based on a study of working groups, report that face-to-face conversations are preferred for negotiating and reaching consensus, whereas e-mail is preferred for coordinating schedules, assigning tasks and making progress reports. Hindle (1998) when talking about negotiation says to limit the damage from a breakdown in negotiation, the two parties should re-establish communication as quickly as possible. The best way to do this is in a face-to-face meeting. However, if a breakdown has been very acrimonious, it may be more appropriate to make reconciliation in writing. E-mails are perfect for this because they are private and fast. When talking about negotiation, Baguley (2003) says that almost all negotiations use the spoken word because it is flexible and direct. Adding that when you speak to people it can: make them feel that they have been personally consulted; lead to expression of feelings as well as ideas and enable sharing and comparing. Benefits of communicating by spoken words include the ability to see each other and using body language. Most facial expressions display emotions and provide as half of the meaning' of any face-to-face communication. However, facial expressions, gestures and movements do not just act on their own – they also complement, supplement and add emphasis to the words that are spoken. Very rarely does negotiation take place using the written word. The main reason for its limited use is its indirect nature. However, the written word does have its advantages. It can enable you to express your own ideas and feelings without having to respond to other people's reactions and responses. Its indirectness will enable you to put more thought into your choice of words and your written message can be reshaped until satisfactory.

Bowditch and Buono (2001) reports that a face-to-face interaction is the richest communication medium with the greatest ability to resolve ambiguous situations, followed by telephone, e-mail and written documents. Sproull and Kielser (1998) highlight that face-to-face communications are better than electronic communications because persuading subtly in electronic communication is harder. The highest levels of co-operation in a group is gained by face-to-face interactions (Cogburn et al. 2002). This is because face-to-face interaction are considered rich in literature as non-verbal information (gestures, postures, expressions, and gazes) can be observed by the team members. Ku (1996) offers further benefits of using e-mail, by mentioning that people who are hesitant to raise their ideas in a traditional meeting format or face-to-face with colleagues are more comfortable expressing their thoughts and options via electronic messaging systems. Ku's work suggests that e-mail can play an important role for quieter members of the team.

According to Straus and Olivera (2000) e-mail provides added value over verbal (i.e. face-to-face or telephone) requests and commitments because a written record is provided. Alexander (2002) extends this point by adding that e-mail can be useful in collaborative work as the permanent record it provides creates a context and allows for reflexive deliberation. Attaching surrounding context can be quick and easy when sending e-mail messages and this is one of the ways in which a distinct advantage over ephemeral face-to-face conversations can be found (Ducheneaut and Bellotti, 2003). E-mail messages are not ephemeral, adding to the benefit, that once messages have been received, they can be re-read, archived or even forwarded to other individuals (Easterbrook, 1996). However, care must be taken when

composing the message to not use just capital letters. A message sent in capital letters is the equivalent of shouting at the receiver (Wallace and Vingate, 2000).

Carmel (1999) also shows that e-mail's popularity of use stems from the fact that e-mail is easier to use for those whose native language is not English. A real-time meeting, for example in English can be exhausting for a non-fluent English speaker. However, if the information is communicated using e-mail, the message can be read or a reply produced at the receiver's own speed, or with assistance from a friend or a dictionary if necessary, and not under pressure as the face-to-face situation may impose. Carmel reports an interesting example. Japanese developers after attending face-to-face project meetings for a few weeks requested to minimise their participation in face-to-face meetings and to communicate with other team members via e-mail. The developers still remained on site, but the burden of communicating in English became too much for the Japanese software engineers. This simple example illustrates how team members can show a preference of one form of communication over another.

Dix et al. (1998) has also found that some text-based communication can sound harsher and more critical than face-to-face communication, as a result of non-verbal cues such as body language, tone of voice and facial expressions missing from the interaction. In addition, face-to-face communication is often seen as the ideal to which computer mediated communication should aim. Dix et al. (1998) show that we carry forward all our expectations and social norms from face-to-face communication, when using computer mediated forms of communication. This is interesting and shows that there are aspects from face-to-face communication and interactions that team members like and take with them when communicating with others through a different medium.

Although literature (Dix et al. 1998) shows that e-mail messages are increasingly used within organisations for passing critical information or making important decisions, differences have been found between e-mail and text-based meetings. Both e-mails and text-based meetings are less effective at resolving conflicts than a face-to-face meeting. Ducheneaut and Belloti (2003) also refers to e-mail as being a poor, technically limited substitute for face-to-face communication, but interestingly reporting that many professionals spend a greater part of the day communicating over e-mail than face-to-face. Ducheneaut and Bellotti also report that the variety of objects that are talked about in the e-mail channel appears to be as broad as in face-to-face encounters. This highlights no significant differences between the two forms of interaction.

Finholt et al. (1990) identifies tasks that are easy to perform using computer mail (now referred to as mail rather than email), which otherwise would have been done at face-to-face meetings. A manager for example can use mail to collect and disseminate scheduling information collected at the face-to-face meeting, rather than taking up time in the group meeting to plan other meetings. Certain co-ordination and morale boosting functions can be performed by mail rather than face-to-face interactions. For example, using mail, group members can tell each other about their individual progress and find out about how others are doing. However, literature shows that face-to-face meetings still commonly have individual team members report their progress to the rest of the team. Finholt and his colleagues also report that some questions need to be addressed face-to-face. Mail can also be sent to make announcements or to reiterate task assignments for individuals or sub-groups and to send status reports.

The next section looks at supporting interactions.

2.4.4.4 Supporting interactions

Literature also looks at how to support interactions. This sub-section looks at supporting face-to-face interactions, meeting related information (as a sub-type of holding face-to-face interactions), e-mail interactions and establishing common ground. To support interaction, guidelines, suggestions, best practices and insights are reported in literature. Guidance on how to run an effective team and to work as part of an effective team is covered by the following authors (Robbins and Finley, 2000; Mohrman and Mohrman, 1997; Belbin, 1998; Johnson and Johnson, 1994; Gorla and Wah Lam, 2004). Interesting proposals have also been made by Foster (1992) which should be considered when you have team members who do not use English as their day-to-day language for communication and collaboration purposes. His proposal for confirming understanding is particularly interesting, as it mentioned *"...one of the most advantageous skills you can develop is that of confirming mutual understanding.."*. Although Foster used the term mutual understanding, he did not define it, only suggesting how repeating what you have heard could check understanding. Also, although Boddy (2002) did not go into detail, he did relevantly mention that an effective team depends on sufficient effort, relevant knowledge and skills, and the use of suitable work processes.

Smith and Blanck (2002) offer some useful suggestions on running effective meetings. The following authors look at running effective meetings as well (O'Hara-Devereaux and Johansen, 1994; Warner, 1996; Boddy, 2001; Napier and Gerschenfeld, 1993).

In order for e-messages to be understood the writer needs to make sure that they are clear and that all wording is unambiguous. Wallace and Vingate (2000) and Whelan (2000) suggest some guidelines and tips on how to write good e-mail messages. Whelan has reported that a number of basic steps that would seem obvious in business communications, are ignored with surprising regularity in e-mail messages.

Olson and Olson (2000) include in their prescription focussing on the importance of common ground, that the more common ground people can establish, the easier the communication will be and the greater the productivity. In situations where people have established little common ground, they should be allowed to develop it, either by travelling and getting to know each other or by using a high-bandwidth channel.

Not all the guidelines, best practice and suggestions offered are in the context of supporting mutual understanding or any of its relevant ingredients. Olson and Olson (2000) was an exception and provided some useful information to help support the building of common ground in a team. Guidelines, best practices and suggestions are useful to remind one of what action can be take. Each can be useful, even in situations when what is reported is 'basic common sense'.

The next section concludes this chapter.

2.5 Conclusion

This chapter has reviewed literature which identifies how the term mutual understanding is referred to in different sets of literature. It also shows that the term mutual understanding is one which is not well

defined by the authors who use it, although many authors do share some common ingredients which they believe are necessary to hold mutual understanding. In addition, most of the references to mutual understanding are applied to dyadic interactions, as are the proposed methods for monitoring mutual understanding.

Literature on teamwork shows why teams are formed and the different stages of team development. Different roles that team members can be given were also outlined in this chapter. Further challenges of working in a multidisciplinary team were identified, as were interactions, particularly focusing on face-to-face and e-mail. The need to have common ground was discussed in teamwork literature and was also covered when examining definitions for mutual understanding and how mutual understanding has been referred to in existing literature. Another overlap between the wider literature surveyed and teamwork literature was applying the term mutual knowledge and identifying problems related to achieving it.

Drawing the various literature together suggests that teamwork as well as dyadic interactions requires mutual understanding, however some of the challenges presented in multidisciplinary teamwork can make achieving mutual understanding not an easy process. The thesis investigates this.

The next chapter presents a re-definition for mutual understanding that can be applied to a team and proposes a method which can be applied to monitor the evolution of mutual understanding for face-to-face interactions and e-mail interactions.

Chapter 3

Defining and monitoring mutual understanding

Chapter 3: Defining and monitoring mutual understanding

The previous chapter shows that existing definitions for mutual understanding are restricted to dyadic interactions (Brennan, 1990; Rogers, 1986). In addition, other situations where authors refer to the term mutual understanding a sound definition is not provided (for example, Mulder and Swaak, 2001).

In this chapter, a re-definition for mutual understanding is therefore required which can be applied to more than two persons, as this appears to be one of the main limitations of existing definitions. Providing a re-definition which allows *'more persons'* to partake in interactions is not the only change that is required, a more precise definition is also necessary as mutual understanding is a term which is often taken for granted in literature, and few authors have actually defined it (Brennan, 1990).

Reviewing and synthesising relevant literature produced a re-definition for the term mutual understanding. Although Mulder and Swaak (2001) did define the four categories or aspects for monitoring mutual understanding, they did not define the term mutual understanding so their work could not be used as a starting point to develop the re-definition. However, their work can still be used to identify the four categories or aspects of mutual understanding that they have characterised. Therefore, to develop the re-definition, Brennan's (1990) existing definitions were used.

In addition, one set of real-life data collected as part of this research investigation was used to assess how the re-definition characterises mutual understanding. Revisions were made to the re-definition for mutual understanding and the final version of the definition is presented in section 3.2.1.

The re-definition for mutual understanding can be applied to a team as this definition is not just restricted to dyadic interactions. In addition, this definition is more precise than Brennan's existing definitions because it identifies all known relationships between ingredients necessary for mutual understanding and does not assume that those relationships would already be familiar to the reader. Also provided in this chapter, are re-definitions for the ingredients necessary for mutual understanding, so that those terms are interpreted in the manner intended by the researcher.

To monitor grounding, states and sub-states are also provided in this chapter. By monitoring the grounding process, evidence of common ground and mutual beliefs can be established which are important for mutual understanding, according to the re-definition. Literature (for example, Traum and Allen, 1992), has revealed how grounding can be monitored and this contributes significantly towards this research, as grounding is one of the ingredients for mutual understanding according to the re-definition. As shown in the previous chapter, authors do view mutual understanding being achieved through the process of grounding, so this research carried out by Traum and Allen is significant.

States and sub-states are necessary to analyse the empirical data collected for this investigation. Characterising the states and sub-states was necessary as the grounding process needs to be examined at a fine level of detail, and according to the re-definition for mutual understanding, it is through the grounding process that common ground and mutual beliefs are established. However, the re-definition for mutual understanding alone does not cover the grounding process in enough detail to allow mutual

understanding to be monitored. Hence, the states and sub-states which have been characterised are necessary.

The next section reviews existing definitions of mutual understanding which have been found in literature.

3.1 Reviewing existing mutual understanding definitions

As the previous chapter has shown, Brennan (1990) is one of few authors who has actually attempted to define the term mutual understanding. Others use this term, or refer to it in literature, without offering a precise definition (for example, Rogers, 1986; Allwood et al. 1993; Martin and Rouncefield, 2003; Baker, 1998; Mulder and Swaak 2000; Pohl and Jacobs, 1994).

Brennan (1990) defines mutual understanding as
"*A particular kind of mutual knowledge - the state at a particular moment in a conversation where both people are reasonably sure that they're jointly focused on the same thing, and that they both understand what has just been said regarding it*", and
"*A state where two people are jointly focussed with respect to some piece of their mutual knowledge, presumably one that they have just established by talking about it or using ostensive cues. This state is not achieved automatically, by default; nor is it reached autonomously; nor is it infinitely recursive or mysterious. It is achieved step by step, through the process of grounding*".

The list of six constituent parts from Brennan's (1990) definitions show that

- Mutual understanding is a state,
- It requires mutual knowledge,
- The participants must be *'jointly focussed'*, which suggests referring to an object in a face-to-face setting,
- The participants must be aware of their own and the other's understanding,
- Mutual understanding is achieved through interaction/conversation, and
- Mutual understanding is achieved through *'grounding'*, the exchange of evidence about understanding.

Not only are Brennan's (1990) definitions restricted to dyadic interaction, it is also not clear whether all of those constituents are necessary and sufficient to achieve mutual understanding.

Using the notion that mutual understanding is the intersection of A's and B's understanding (Rogers, 1986) mutual understanding in a team interaction would consist of the sum of individual pairs of mutual understanding. As figure 3.1 shows, in a three person team the sum of mutual understanding would be A and B's mutual understanding, B and C's mutual understanding and A and C's mutual understanding. This example illustrates the complexity which emerges when an interaction is triadic, not dyadic. Further complexity in the sum of mutual understanding can be assumed as Katzenbach and Smith (1993) suggest that between five and nine is seen as a manageable and optimal size for a team.

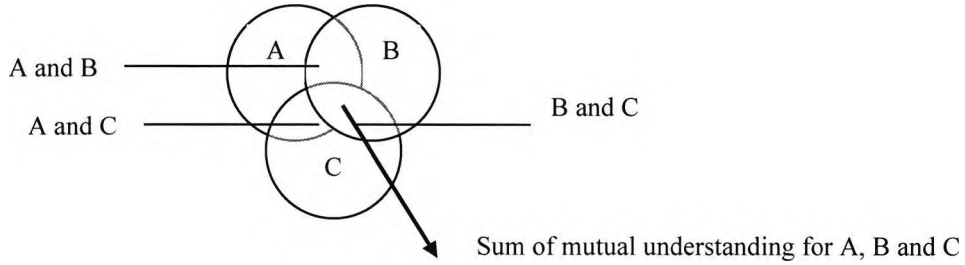


Figure 3.1: Sum of mutual understanding for triadic interactions

The next section examines a proposed re-definition for mutual understanding.

3.2 Proposed re-definition for mutual understanding

A re-definition for mutual understanding is presented in this chapter by paying attention to the limitations identified from Brennan's (1990) definitions. As Brennan is one of few authors who has attempted to define this term, her definitions are used as a starting point to develop a more precise definition for mutual understanding and one that is applicable to teams.

Brennan's (1990) definitions are used to establish what she considers to be relevant when talking about the state of mutual understanding and also to extract from her definitions those areas which are relevant to teams and to the two types of interactions which are the focus of this investigation, face-to-face and e-mail.

The re-definition for mutual understanding is presented next.

3.2.1 Re-definition for mutual understanding

"The state at a particular moment in an interaction, where through the process of grounding, sufficient common ground and mutual beliefs are established for current purposes between team members. In grounding, recognising speaker/writer intentions is also important.".

The next section examines how a sample of empirical data was used to formulate the re-definition for mutual understanding.

3.2.1.1 Using empirical data to test the re-definition for mutual understanding

To test the re-definition for mutual understanding and the ingredients for mutual understanding (grounding, common ground and mutual beliefs) ten random extracts from the 17/12/01 and 18/12/01 transcripts were used. The purpose of using ten extracts was to show that the ingredients for mutual understanding were suitably characterised and evidence of those ingredients could be found in real data. In addition, the literature from the previous chapter played an important role in the re-definition for mutual understanding. That is to make sure that the re-definition for mutual understanding also included what is reported in literature. Examining literature is important, especially to check that the re-definition is complete. This is because only ten random extracts were used for testing.

Table 3.1 shows an example of theme *Change to the agenda,* from the 17/12/01 face-to-face meeting transcript. This example is relatively short in length, so its explanations are both clear and concise, aiding with its understanding. In this example it is important to look at the entire interaction, paying close attention to the individual propositions in the interaction as well. It is important to pay attention to the individual propositions as this is where the grounding evidences are displayed. The researcher selected this theme to use as an example as it is of a general nature, so it can be understood by persons not familiar with the case study for this investigation. The case study for this thesis is introduced in detail in the next chapter. This example in table 3.1 also highlights the three main terms (ingredients) identified in the re-definition for mutual understanding - grounding, common ground and mutual beliefs.

To determine that mutual understanding is reached during any interaction, it is important to first identify theme(s) in the data. This is because identifying theme(s) help to produce more insightful results. Results that are relevant for a purpose rather than using the entire data set.

Table 3.1 shows that by the end of this interaction there is sufficient common ground and mutual beliefs established through grounding evidences to determine that mutual understanding has been reached during this face-to-face meeting on theme *Change to the agenda.*

Change to the agenda — Theme

Charlotte: ok there is a slight change to the agenda that I sent around and in that we need to be out of this room earlier, um so Desmond will do and Paul will do their presentation on screen readers and after that there will be more opportunities for people to try out the speech and magnification systems themselves and um anyone who did not see quite what they wanted to this morning or try something out there will be more of a chance to do that. And um that will finish at four and then we can have any other further questions until half past four and then we need to finish in this room at half past four I will now hand over to Desmond and Paul
Ronnie: ***Can I say something please before they start, I think there is a need to um to spend at least half an hour of the afternoon discussing the general structure and the general problems of the project, [pause] I will tell you later on the reason for this, I think um this kind of exercise to look at these special technologies etc is not for all of us. We have already spent some of the time during the morning [pause]. It was an exercise that I do not think was useful for all of us and I think we should really use part of our time in the afternoon to discuss very very important and, and essential issues for our project, because I think there must be some rethinking and there must be some suggestions to put forward in order to clarify at, at least um from a general point of view some aspects of the project from our point of view are not sufficiently clear. So I think that we should leave the exercise of the technology and straight after the presentation go onto discuss those methods. Thank you.***

Highlighted and italicised text shows evidence of grounding, establishing common ground and mutual beliefs between team members

[Michael's' translator and him are whispering to each other]
Charlotte: Hazel do you want to comment on that or sort of, I do not know what we are discussing tomorrow so,
Hazel: ***yes. I mean I did not set the agenda for tomorrow so given that this afternoon is the only time we have to have to spend more time looking at the technology, I am not really sure what the best plan is. I think we [pause] because I agree with both sides of the story is the problem.***
[Ronnie laughs]
Hazel: I am modestly taught, so Jack
Jack: err I said in the agenda tomorrow afternoon is this work package 1 follow up and conclusion, that was the point where we had to discuss how the project is going, what the problems are, so more in the sense of your suggestions
Charlotte: and this afternoon is the only other time we will have the machines with access technology on there
Someone: ***Uh-huh.***
Charlotte: so if, who, would people find it useful to go over the technology and try it out for themselves?
Someone: Um
Someone: Um how
Ronnie: we could ask who needs to do it and then see
Paul: ***Right who actually wants to have some hands on work with the technology this afternoon, who needs that?***
[Pause]
Charlotte: who would like to try the technology this afternoon?
[Muttering in the background]
Someone: all the technical partners
Charlotte: ***ok. 1-2-3-4-5, that is quite a number of people, did you two say yes***
Ben ***yes***
Charles ***yes***

Charlotte: ***ok. That is seven people and [pauses] so seven people would like to try the technology. Um I think that since today is the only time the technology available***

Desmond: ***I understand that.*** Charlotte: we give people the time to do so

Desmond: the advantage would be that Peter has to leave this evening and I have to leave tomorrow at a quarter to twelve or one o clock and I could not be there
Hazel: can I
Desmond: tomorrow
Hazel: can I suggest a compromise and suggest that we swap the morning and the afternoon around for tomorrow, so that,
Fabian: ***no, no, not possible for me I have to leave also at one or so tomorrow***
Hazel: ***right.***
Someone: this small coordination points and then the more technical focus for the afternoon
Paul: But for future meetings like that I would really would suggest, that if there should arise the necessity to look at technology again from some other point of view then we really should try and plan things differently. Because I know that for some of us it has really been, I am sorry to say that but straight up and straight forward this, this morning has been a waste of time. I realize that some of you really need to know the technology and need to look at it but I really think that this is not the way to really deal with it while there are several people here who had to travel here yesterday and spend time, and we all do other things and we are all on busy schedules, so I really think this needs to be planned a little more carefully, so we will not have another meeting like this, if ever um [pause] opportunity should, necessity should arise to look at technology again. I am not going to say more, I do not want to take more time away from you
Ronnie: so lets organise if possible the afternoon that we have at least half an hour before leaving open for discussion
Someone: ***Uh-huh.***
Ronnie: to concentrate on the technology
Someone: ***Yeah.***
Ronnie: moment and then from four o'clock to half past four to make a general discussion because we are all here. Many of us will not be there tomorrow, even some from Spain who are the project leaders, so I think we must do it.
Jonathan: ***that is not a problem, half an hour***
Charlotte: is that a problem?
Kenneth: I would suggest that we are going to do that, it would be better to follow immediately after the presentation, with that discussion
Hazel: ***I would agree.***
Kenneth: then it would allow those people that want to stay on and look at technology can and those that don't can go back to their hotels and whatever
Charlotte: we can look at the technology till half past four, I just need to pack up the computers and everything for um five, so, um we can still do that.
Hazel: ***yes.***
Charlotte: And can we make sure that we break that discussion um after half an hour, then there will still be time to look at the technology
Ronnie: but we really do it in the interest of the project
Peter: ***ok***. Lets get started *[pause]*

Reached the state of mutual understanding: Established sufficient common ground and grounding for current purposes

Table 3.1: Annotated transcript fo

Table 3.1 also illustrates the iterative process of looking at empirical data to deduce that the ingredients necessary for mutual understanding can be identified in real-life data. This is because seeking evidence of grounding cannot be achieved by looking at an extract only once or in isolation and without looking at its overall context. Identifying grounding evidence(s) requires each line of the transcript to be read, paying close attention to the evidence(s) provided by the listener(s). To draw attention to the different types of evidence(s) which can be provided to show grounding in an extract, the evidence(s) are highlighted and italicised as table 3.1 has shown. It is also necessary to look at the grounding evidence(s) an additional time to deduce whether common ground and mutual beliefs were established as a result of identifying the grounding evidence(s). This process supports the view that looking at empirical data is iterative because you need to examine the data you have more than once.

Now the interactions in this theme are summarised to explain how it was determined that mutual understanding in table 3.1 was reached.

Change to the agenda
In this interaction Charlotte informed everyone that there was going to be a small change to the agenda which had been circulated. This is because the room that they were using now had to be vacated earlier than originally expected. However, the team was informed that time would still be made available for team members to interact with the technology, which had been shown and demonstrated earlier that day, allowing self-testing to still take place.
Summary of the interactions
• Charlotte informed the team that there was a change in the agenda. She explained to everyone what would happen as a result of this change; • The team were then expecting Desmond and Paul to present their work following Charlotte's update on the change in agenda; • However, Ronnie had some important information he wanted to share with the team, before allowing Desmond and Paul to begin their presentation. Ronnie suggested holding a discussion after Desmond and Paul completed their presentation rather than looking at technology as it had been planned **(evidence of grounding)**; • Charlotte asked Hazel for her opinion as she did not know what was going to be discussed during day two of the meeting; • Hazel said that she did not set the agenda, but there was time dedicated for discussions on day two of the meeting **(evidence of grounding)**; • Jack referred to the agenda for this meeting and confirmed that time was dedicated for discussions on day two of the meeting; • Charlotte reminded the team that today would be the only day that technology would be available for self-testing; • Charlotte, Ronnie and Paul attempted to identify who would benefit from looking at the technology **(evidence of grounding)**; • Charlotte informed everyone that there were seven people who were interested in looking at the technology **(evidence of grounding)**; • Charlotte recommended that time should be given to those people who were interested in self-testing the technology as it would only be available today; • Hazel suggested swapping around the morning and afternoon sessions on day two of the meeting; • Fabian disagreed with Hazel's suggestion as he would have to leave the meeting by 1pm **(evidence of grounding)**; • Hazel accepted Fabian's response **(evidence of grounding)**; • Paul said that future meetings required more careful planning as looking at technology is not a task for everyone and everyone would not benefit from it; • Ronnie suggested holding a 30 minute discussion at some stage in the day, as everyone would not be present on day two of the meeting; • Jonathan said that Ronnie's suggestion was not a problem **(evidence of grounding)**; • Charlotte also asked the team if Ronnie's suggestion would cause a problem for anyone; • Kenneth asked if the discussion could be held straight after the presentation by Desmond and Paul; • Hazel agreed with Kenneth's proposal **(evidence of grounding)**; • Kenneth suggested that people could then look at the technology if they wanted, and if not they could return back to their hotel rooms; • Charlotte informed everyone that they would be able to look at the technology until 4.30pm. After this she would need to pack up, • Hazel and Peter agreed with Charlotte, and Peter said to start the discussion **(evidence of grounding)**. This was the last line in this extract.

Table 3.2: Summary of interactions for theme Change in agenda

Overall, the dialogue contained in table 3.1 and summarised in 3.2, shows that there was evidence of mutual understanding being reached by the end of that interaction through evidence of grounding, common ground and mutual beliefs. In this interaction everyone was informed of the change in agenda by Charlotte. Everyone was also made aware that time would still be available to hold a discussion on the project and to test the technology which had been demonstrated to team members earlier on that day. Common ground was also established amongst the project team by team members sharing this salient information. There was evidence of increased beliefs in this interaction as well. That is time would be available to hold a discussion, the technology can be tested by team members and that items that are already on the agenda for day two of the meeting cannot be swapped around. There was evidence of altered belief states in this interaction too. Altered belief states simply means that the team members held

the belief that they did not all hold the same belief. An example of altered belief states was when Hazel suggested swapping around the morning and afternoon sessions on day two of the meeting with Fabian rejecting this suggestion. Hazel then accepted Fabian's rejection, reinforcing the belief that the morning and afternoon session would not be swapped around on day two of the meeting.

Evidence of reaching mutual understanding in a theme is usually found towards the end of that theme. This was true for theme *Change in agenda*, where the state of mutual understanding was reached at the end of that interaction. This means that there were no further opportunities to reach the state of mutual understanding again in that theme. However, in some situations it is possible to reach more than one state of mutual understanding in a single interaction. This usually occurs when interactions in one theme are embedded with interactions that are related to another theme. In addition, interactions that have more than one state of mutual understanding reached in a single interaction are usually more lengthier interactions.

Establishing additional common ground and mutual beliefs in an ongoing interaction leads to growth in mutual understanding. In this context ongoing interaction can be from the original interaction, particularly if it is lengthy, or from additional interactions looking at the same theme to show what developments may have occurred.

However, when there is only one state of mutual understanding that has been identified in an interaction, and no related sub-theme(s), you can only claim that the state of mutual understanding has remained the same.

It is important to note that the state of mutual understanding can never become smaller. This is because once additional common ground and mutual beliefs have become established, the state of mutual understanding can never become smaller, only larger, or remain the same.

The next section compares the re-definition for mutual understanding with existing literature on mutual understanding.

3.2.1.2 Comparing the re-definition for mutual understanding with existing literature

Now examined are the two similarities and seven differences between the re-definition for mutual understanding and Brennan's (1990) definitions.

3.2.2.2.1 Comparing similarities between the re-definition for mutual understanding and Brennan's (1990) definitions

Consistent with the definitions by Brennan (1990), mutual understanding in this re-definition is also characterised as a state. So, is the fact that mutual understanding is achieved step-by-step through the process of grounding. Existing literature (for example, Baker et al. 1998; 1999; Mäkitalo et al. 2001; Kraut et al. 2003; Clark and Schaefer, 1989; Clark and Wilkes-Gibbs, 1986) has mirrored the close relationship between common ground and grounding. The relationship is that establishing common ground is referred to as grounding.

The next section compares the differences between the re-definition and Brennan's (1990) definitions.

3.2.1.2.2 Comparing differences between the re-definition for mutual understanding and Brennan's (1990) definitions

The definitions by Brennan (1990) do not imply the relationship that establishing common ground is called grounding. So, the re-definition for mutual understanding makes this relationship explicit. Making the relationship explicit is of particular significance to those not familiar with related literature and fail to see the association between these two terms, common ground and grounding. Brennan may have assumed that her readers were familiar with related literature and did not need to make all relationships and associations between the terms she used explicit.

Baker and colleagues (Baker et al. 1998; 1999) also view grounding as the interactive process by which common ground (mutual understanding) between individuals is constructed and maintained. In their work they refer to common ground and mutual understanding in the same context. That is, common ground is viewed as a set of mutual beliefs of conversational participants about the meaning of their utterances during conversation, and not how. Clark and Carlson (1982); Clark et al. (1983); Clark and Brennan (1991); Clark (1992); Clark and Schaefer (1992); Mulder (2000) and McCarthy et al. (1991) all consider how. These seven authors all refer to common ground as requiring knowledge, beliefs and suppositions. However, the re-definition for mutual understanding does highlight that unlike Baker and colleagues, common ground and mutual understanding are not viewed as distinct terms and should not be referred to interchangeably. According to the re-definition for mutual understanding, common ground is one of the ingredients necessary for the state of mutual understanding, further reinforcing why terms common ground and mutual understanding cannot be used interchangeably like Baker and colleagues do.

Also, the term mutual belief is used in place of mutual knowledge in the re-definition for mutual understanding. This is because *'to know'* something implies a notion of truth in what has been said. In contrast, *'believing something'* does not seem to suggest truth in the matter, only belief. Soulhi (1984) who looked at knowledge in the context of examining truth has confirmed this. For example, *"A knows that P"* is equivalent to *"P is true in every world compatible with what A knows"* (*P* in this example is the proposition). False knowledge is also impossible because what is said is known to be true. That is, if P is false, we cannot say *"John knows that P"*, only that, *"John believes that P"*. This axiom highlights the main difference between knowledge and belief.

Galliers (1989) also accepts the viewpoint of (Soulhi, 1984). Galliers says that belief does not look at truth, by referencing the Hintikka schemata (Hintikka, 1962). According to Galliers, the one property, which distinguishes knowledge and belief, is the notion of truth. Beliefs are therefore endowed with the property of not necessarily relating to *'truth'* as existence in the real world. The other properties identified through the Hintikka schemata still apply to both knowledge and belief, it was only truth which separated knowledge and belief.

Knowledge and belief are nouns, and the act of *'knowing'* and *'believing'* are verbs (Kirkpatrick, 1998). Soulhi (1984) and Galliers (1989) show the main differences between the two nouns. However, authors (for example, Joshi, 1982), sometimes use the two interchangeably. This researcher views *'knowledge'*

and *'belief'* as distinct terms, and not to be used interchangeably, as each term has associated to it, its own notions. In this example, it is the notion of truth versus belief.

However, others (for example, Tuomela, 2000; Engel, 1998) do view belief as being related to the notion of truth. According to Tuomela, belief seems to be connected to truth and to the acceptance of the content of belief as true. To illustrate what Tuomela is saying, the following example is used. If a person accepts as true that the cat is on the mat, then it might seem that he must also believe that the cat is on the mat, and conversely. Despite the viewpoints of Tuomela and Engel, in this investigation belief is concerned with *'believing'* and knowledge is concerned with *'truth'* and not vice versa, holding the viewpoints of (Soulhi, 1984; Galliers, 1989).

Further, Brennan (1990) did not explicitly mention by what means the conversations would be taking place. However, in the re-definition for mutual understanding, the speaker and writer are included, to tie in with the two types of interactions, which are examined, in this investigation. The notion of recognising speaker/writer intentions is also included, as you can only assume that you have understood the speaker/writer's intentions (Grice, 1957), subsequently tying in with the use of *'belief'* opposed to *'knowledge'* as already discussed.

In addition, the notion of growth and no growth in mutual understanding can be inferred from the re-definition for mutual understanding. Brennan (1990) did not include this in her definitions. In the re-definition, growth in mutual understanding implies that as additional common ground and mutual beliefs become established, further states of mutual understanding become identified, thus making the state of mutual understanding larger. Only when no further states in an interaction are found which establish common ground and mutual beliefs, can it be said there is no growth in mutual understanding. In this situation you can only say that there is evidence of mutual understanding in that interaction, but no comments can be made on its size.

This re-definition for mutual understanding can also be applied to a team, because it is not just restricted to dyadic interactions, like the definitions by Brennan (1990) did. However, existing literature on teamwork (for example, Robbins and Finley, 2000; Katzenbach and Smith, 1993) do suggest that a team can be considered as two persons or more. Therefore, if the notion that a team can consist of just two persons is accepted, Brennan's existing definitions for mutual understanding can be used. However, as already discussed Brennan's definitions are not precise.

Also, the re-definition does not define the minimum or maximum size of a team. The researcher did not think that this was relevant, as team sizes can vary, and depend on factors such as the skill mix in the team and monetary factors. Katzenbach and Smith (1993) did suggest that between five and nine is seen as a manageable and optimal size for a team. This is because if the number goes above nine, communication tends to become centralised because members do not have an adequate opportunity to speak to each other and extra time and effort is required to ensure good communication. As already mentioned, dyadic interactions were not the only problem with Brennan's definitions, it was also not known if all constituents were necessary to achieve mutual understanding.

The re-definition for mutual understanding reveals that some of the constituent parts, which were identified from the definitions by Brennan (1990), are not included in this re-definition. For each constituent part that was identified in Brennan's definition, but was not used in this re-definition is now examined.

Joint focus, in the context of conversations suggests referring to some physical object. As all interactions do not refer to objects, the re-definition for mutual understanding does not make this point explicit. Joint focus also implies that participants are together in a face-to-face setting, referring to some physical object. It appears that Brennan (1990) included it, as (Sperber and Clark, 1982; Clark, 1992; Clark and Marshall, 1992) all report that physical copresence is one of the strongest types of evidences for mutual knowledge, and one which people are generally prepared to accept. It is important to bring to attention that physical copresence was discussed in the context of mutual knowledge, a term not included in the re-definition for mutual understanding. Brennan also did not distinguish on the three types of physical copresence that exist, *immediate* (two subjects who are both focussing on an object as it is being discussed), *potential* (one of the subjects does not pay attention to the object that is still in view, but then looks at it when the other subject makes reference to it) and *prior* (two subjects who have looked together at the object, but stopped before the object was referred too). However, an assumption can be made that Brennan is likely to refer to the immediate physical copresence as this offers the strongest type of evidence (Clark and Marshall, 1992). One of the main benefits of having physical copresence as reported in literature (for example, Sperber and Wilson, 1982) is that the participants have the benefit of seeing people attending to what is being referred too. However, the discussion on the benefits of using copresence has not covered what happens when you have someone that is either visually impaired or blind and have different communication requirements and needs.

As being aware of your own and others understanding, is assumed to be a pre-requisite to achieving grounding (Brennan, 1990), this is not mentioned separately in the re-definition for mutual understanding. In addition, as grounding requires interactions and/or conversations, this is also not defined separately in the re-definition. To refer to interactions and conversations in a more meaningful way, Brennan could have included the term common ground in her definitions for mutual understanding.

In summary, the re-definition for mutual understanding proposed in this section has not introduced any additional terms (ingredients) not already found reported in existing literature. However, before the next section examines the re-definitions for ingredients necessary for mutual understanding, it is important to show how each ingredient for mutual understanding relates to one another. Figure 3.2 shows the relationship between the ingredients for mutual understanding.

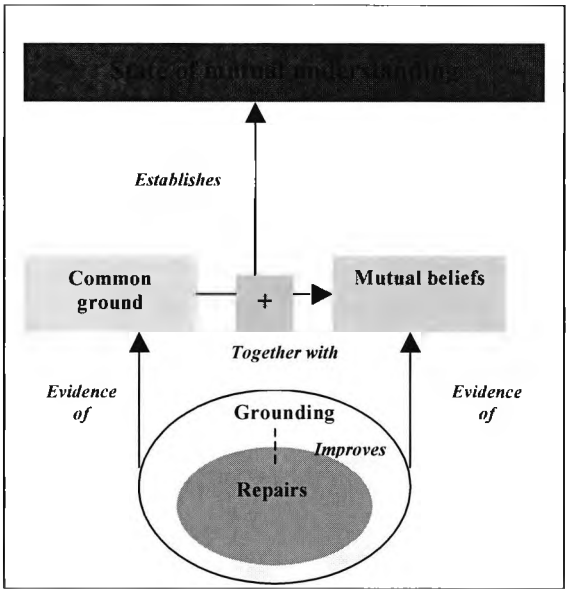


Figure 3.2: Graphical representation for mutual understanding and ingredients for mutual understanding

Figure 3.2 shows that the state of mutual understanding can only be reached by establishing both common ground and mutual beliefs. One or the other is not acceptable and both are necessary to reach this state. Also, to establish common ground and mutual beliefs, evidence of grounding is important. Repairs can also be used to improve grounding.

The next section examines the re-definition for the ingredients necessary for mutual understanding.

3.2.2 Proposed re-definitions for mutual understanding ingredients

Common ground, is mutual understanding's first ingredient to be examined.

3.2.2.1 Re-definition for Common Ground

'Common ground is salient information which is mutually believed by each of the communicating parties. Salient information is established and shared because of the communicating parties collaboration, interaction and membership to a particular community, society and/or copresence in a particular environment or context. In teamwork, it is important that everyone works towards the same common ground and it is constantly updated'.

In the re-definition for common ground, the term salient information is used in a generic manner to refer to relevant information which is important to the communicating parties. Unlike Clark and Schaefer (1992) who identified the two main parts that common ground is made up from, one, *communal* (all the knowledge, beliefs, and assumptions they take to be universally held in the communities to which they mutually believe they both belong) and two, *personal* (all the mutual knowledge, beliefs and assumptions they have inferred from personal experiences with each other), the re-definition for common ground did not make this explicit. The circumstance(s) in which the re-definition for common ground is applied, will identify whether there is communal common ground, personal common ground, or both communal and personal common ground. According to Horton and Keysar (1996), common ground is information which is mutually believed by both parties. This shows the association between common ground and

mutual belief. The re-definition makes this association explicit, showing that both are necessary to reach mutual understanding.

According to this re-definition for common ground everyone must work on the *'same'* common ground . This point is particularly significant to teamwork, as teams are composed of individuals with relevant skills and experience that are working together on shared aims and objectives. In this situation same common ground is required to make progress towards reaching the aims and objectives. Otherwise, differences in common ground may lead to difficulties in working towards the aims and objectives of what originally brought the team together. In addition, the end results may differ from what was originally expected. Therefore, to ensure that everyone is working towards the same common ground it is important that each person is aware of the aims and objectives of what originally brought the team together. It is also important that everyone is aware of any changes that are taking place or any known change to take place. The amount of time that a team has to work together may also contribute to how long it actually takes to establish same common ground, and not personal common ground, using the terms introduced and used by Clark and Schaefer (1992). Looking at the notion of time in more detail, suggests that teams that are working together with each other over a shorter period of time would be required to establish common ground faster than if a team was going to work together over a longer period of time. In addition, it is important to remember that common ground must be constantly updated and that it cannot remain static. Updating common ground is important, particularly when new information is shared amongst the communicating parties, and as a consequence, new information is added to the common ground of those interacting together.

Baker et al. (1999) revealed a number of factors that may affect the possession of common ground. The factors identified by Baker and colleagues included, common membership of a particular culture or group, physical co-presence and previous interactions. The factors identified from their work supports the argument for requiring same common ground during interactions together.

It is also important to remember that any common ground that is established in one conversation can only be used later if the participants are able to remember it (Brennan, 1990). Krauss and Fussell (1990) presents the following formula. There formula says that in the course of a conversation, anything said at time T can be assumed to be mutually known at time $T + 1$. Schwartz (1998) based on Krauss and Fussell's formula, and Clark and Marshall's (1981) linguistic co-presence heuristic, shows that in face-to-face communication, there is total recall and perfect associative skills in human memory. However, Schwartz does not seem to acknowledge that people may not have perfect memory to remember and recall everything that had been said to them on a previous occasion. This is something which should be beard in mind when anyone is analysing such a formula.

Carletta et al. (2002) has also relevantly said that when two people converse, they cannot possibly exchange all of the information necessary to ensure that their utterances are understood as intended, speakers must assume that they share some *'common ground'* with their hearers, as assuming common ground can lead to more effective interactions. This suggests that there must be sufficient common ground for the purpose of the interaction. However, Carletta and colleagues do not show what you should assume to be common ground during any interaction. They simply said that you can assume that being

members of the same community can assume common ground with members of that community. This was also one of the points drawn to attention in the re-definition for common ground.

Also, unlike Clark (1992), the re-definition for mutual understanding and the re-definition for common ground does not suggest that the three elements, knowledge, beliefs, and suppositions, are required to examine common ground. As section 3.2.1 already mentioned, knowledge is related to the notion of truth, and as you would not *'know'* if the speaker or writer is telling you the truth, you can only *'believe'* the communicative intentions that they are either sharing through verbal utterances or through text. Element supposition is also one which is least defined in literature. Further, the researcher also argues that as it can be difficult to distinguish between *'supposition'* and *'belief'* in an interaction, belief alone is sufficient for the re-definition for mutual understanding. Thus, according to the re-definition for mutual understanding, belief together with common ground displays the state of mutual understanding in an interaction.

Literature also reveals that there are some differences in the way that the term common ground is defined. According to Clark and Carlson (1982), common ground is the *"knowledge, beliefs and suppositions that two people share in a technical way"*. Three nouns are identified from Clark and Carlson's definition, knowledge, *'to know'*, belief, *'to believe'* and suppositions, *'to suppose'*. Although Clark and Carlson's definition highlights the importance of sharing, it is restricted to just two persons, dyadic interactions. Further, Clark and Carlson's definition assumes that knowledge, beliefs and suppositions are all required to establish common ground between two people.

Like Clark and Carlson (1982), the following authors look at the term common ground in an identical way, that is by referring to the three nouns already mentioned, *'to know'*, *'to believe'* and *'to suppose'* (Clark et al. 1983; Clark and Brennan, 1991; Clark, 1992; Clark and Schaefer, 1992; Mulder, 2000; McCarthy et al. 1991). The six authors listed here all imply that knowledge, beliefs and suppositions are necessary to establish common ground. There definitions also seems to imply that to establish common ground all three are necessary, and you cannot select just one or two out of the list of three.

The researcher has also made an assumption that as you may not guarantee each of the three verbs (*know*, *believe* and *suppose*) during any type of interaction, belief alone is sufficient in the re-definition for mutual understanding. In addition, the re-definition for common ground does not use suppositions, only mutual belief. Mutual belief is covered in more detail in section 3.2.2.2.

Common ground is important for enabling effective communication and collaboration too (Dillenbourg et al. 1996; Bly, 2003). So is context (Clark and Carlson, 1982). According to Clark and Carlson, the intrinsic context for a listener trying to understand what a speaker means on a particular occasion is the common ground that the listener believes holds at that moment between the speaker and the listeners he is speaking to.

The interpretations made by Veinott et al. (1999) on Clark and Wilkes-Gibbs's (1986) work on common ground, is not relevant to teams, as they looked at dyadic interactions. Veinott and colleagues have said that common ground is referred to as the mutual understanding and beliefs that arise from similar backgrounds and experiences. Although similar backgrounds and experiences are important to achieve

common ground, working in a team does require diverse backgrounds and experiences. For this reason, there cannot be a guarantee of having similarity in backgrounds and experiences, only similarities in the goals that originally brought the team members together.

Common ground is also a term which appears in negotiation literature. Literature on negotiation (for example, Baguley, 2003) mentions the need to find some common ground between you and the other side. This common ground between you and the other side can be almost anything – your, or their family, leisure interests, a particular brand of motor car, a shared holiday location or some memory or reminiscence of the last time you met. Here it can be seen that Baguley's interpretation of common grounds fits in with the description of salient information, which is included in the re-definition for common ground. Also, according to Baguley, the common ground that exists between you and the other side is very important, for in it lies the dormant seeds of your agreement. Baguley's work therefore draws to attention that working towards agreement and reaching agreement is important in negotiation, particularly when looking at the notion of common ground. Although agreement is most likely to be seen in the grounding process, Baguley does not draw attention to this as his work looks simply at negotiation, but not in the context of grounding. However, Baguley did relevantly say that reaching an agreement with someone is rarely a straightforward or an easy task and getting to an agreement requires patience, skill and ability. Also, although Christopher (1996) does not define common ground, it is relevantly said that learning to listen to what the other is *'really'* saying is essential when searching for common ground. According to the re-definition for common ground, listening to what the other is saying, and providing evidence to what the other is saying, establishes common ground and mutual belief, so what Christopher is saying is appropriate

In addition, previous literature (for example, Veinott et al. 1999; Kraut et al. 2003; Whittaker, 2003) has shown that media is important when looking at the achievement of common ground. Veinott et al. have reported that achieving common ground is more successful when two people can see each other, as numerous mini-negotiations are involved. In the context of visual information, Kraut and colleagues have said that referring to visual information can help people communicate about the task, by aiding conversational grounding, or the development of mutual understanding between conversational participants. Interestingly, Whittaker based on some earlier work, came to the conclusion that notions of common ground begin to break down when participants work independently. Whittaker's comment was made in the case of asynchronous communication.

There was no need to mention media in the re-definition for common ground, as the re-definition for mutual understanding already made it clear that it was spoken and written interactions which were being referred too.

To establish common ground, grounding (feedback) is also very important to check understanding. Without feedback from listeners, speakers become more cautious communicators as they cannot be certain that the previous references have been mutually understood and hence part of the participants common ground (Jackson et al. 2000). As section 3.2.2.3 shows, feedback and backchannel utterances provide evidence of grounding.

The re-definition for mutual belief is looked at in more detail in the next section.

3.2.2.2 Re-definition for Mutual Belief

'Mutual belief(s) are established through the grounding process. It is a belief that is held by each member of a team, and the members of this team believe that they all hold this belief'.

The recursive statement by Lewis (1969) is used to model mutual belief.
The members of a group G commonly believe that p = def
The members of G believe that p
The members of G believe that the members of G believe that p
The members of G believe that the members of G believe that the members of G believe that p
Etc., ad infintum.

However, the model of mutual belief (Lewis, 1969) does not show what happens when the individual members belief states alter and they do not believe what the members of G believe. The alteration in belief states would only become apparent to the rest of the team when individual team members speak. Those utterances would therefore provide evidence that the beliefs believed previously to have been mutually believed are evidently not. Utterances would then lead to further belief(s) in the members of the team that they do not hold mutual belief(s) on the issue. Yet team members would still hold mutual belief(s) that they do not hold mutual belief(s) on that issue.

To model mutual belief, Schiffer's (1972) definition was not used as it was restricted to just two subjects, A and B mutually believing that p = def. Lewis's (1969) characterisation was more appropriate, as he characterised mutual belief in a group setting.

The recursive statement by Lewis (1969) has been referred to in it's original form in the re-definition for mutual belief. However, the researcher feels that the recursive nature of the statement is in a vast amount of detail, and it should only be necessary to establish that members of G believe that the members of G believe that p for a criterion sufficient for current purposes. Hence, once this has been established and shared between the members of G, there should be no further need to recursively demonstrate evidence of mutual belief(s).

Kumar et al. (2000) also introduce the notion of group belief in their work. Like Lewis (1969), Kumar and colleagues consider group belief as the beliefs of all the members of a group. Kumar and colleagues say that group belief can also be defined by inclusive belief: A group τ believes p if all individuals or sub-groups that constitute the group believe p. Looking more closely at how Kumar and colleagues define inclusive beliefs, immediately it can be seen that there are differences in the characterisation of group beliefs amongst them and Lewis. That is Kumar and colleagues introduce the notion of sub-groups existing in the group, and not looking at inclusive belief in a recursive manner like Lewis had. However, similarities between Lewis's work and Kumar and colleagues work includes looking at a group, and not just dyadic interaction like Schiffer (1972).

Clark and Schaefer (1989) have said that participants in a conversation must mutually believe that the current listeners have understood what the speaker meant to a degree sufficient for current purposes. This

point was raised in terms of looking at the notion of grounding. Thus, a relationship also exists between mutual beliefs and grounding – that is mutual beliefs are established through the grounding process.

Christopher (1996), in negotiation literature, says that a negotiation is only possible if there is the belief, shared by all parties, that there is some possibility of a mutually acceptable compromise. Christopher's work highlights the importance of everyone holding mutual belief, although not making this point explicit. Further, the recursive manner in which belief is shared by all parties is not made clear by Christopher.

Carberry and Lambert (1999) raises the point that participants may not always *'believe'* what they are being told. The acceptance and non-acceptance of other people's actions can communicate beliefs (Lambert and Carberry, 1992). Differences in domain, world and personal knowledge can result in some beliefs not being accepted because of conflicts with other beliefs (Schroeder and Carberry, 2000). It is interesting to note that Carberry and Lambert and Lambert and Carberry do not bring to attention that *'not believing'* is an example of a persons belief state altering. This change only becomes apparent when someone speaks.

For inferring mutual beliefs, people rely on co-presence heuristics (Clark and Marshall, 1992). When examining mutual beliefs, it is important to remember that it may be difficult to infer true mutual beliefs in practice, since no one can ever be certain that each of the infinitely many individual belief statements are held (Clark and Carlson, 1969).

The re-definition for grounding is examined next.

3.2.2.3 Re-definition for Grounding

'An interactive process by which common ground and mutual beliefs are established and updated moment-by-moment for current purposes by providing evidence of understanding in the form of a reaction and/or response. After grounding the contributions becomes part of the communicating parties common ground. Grounding is critical for effective communication and collaboration. If common ground and mutual beliefs are not established the discourse chunks or textual chunks will need repairing'.

The interactive process of achieving common ground and mutual belief(s) as defined for the re-definition for common ground, considers some of the later points which had been identified when looking at the list of constituent parts from the definitions for mutual understanding by Brennan (1990). Section 3.2.1 has already summarised what constituent parts were not used from Brennan's definitions and why.

The re-definition for grounding also includes the units of analysis (*discourse* chunks and *textual* chunks) to tie in with the analysis of the empirical data collected for this investigation. Discourse chunks are identified from transcripts produced from attending face-to-face meetings. Textual chunks are identified from e-mail messages sent following a face-to-face meeting. More details are provided on discourse chunks and textual chunks in the next chapter.

However, for anyone who is interested in the re-definition for grounding, but is not using discourse and textual chunks as their units of analysis, discourse and textual chunks can be removed from the definition. Removing the two units will not loose its value and would result in the re-definition for grounding appearing as *"If common ground and mutual beliefs are not established, repair(s) may be necessary"*. Repairs are discussed in section, 3.2.2.4.

Other authors (for example, Baker et al. 1998; 1999; Mäkitalo et al. 2001; 2002; Brennan, 1998; Allwood et al. 1993; Dillenbourg, 1999) reinforce the view that common ground is achieved though the process of grounding. Grounding is not viewed as a monolithic process it is interactive. Mäkitalo et al. (2001) has also said that one of the main functions of the grounding process is to ensure effective communication.

Grounding can also take place on different pragmatic and semantic levels (Baker et al. 1999). Grounding at the *pragmatic* level involves participants understanding each other's communicative intentions (what the other is trying to tell them), and at the *semantic* level, it involves searching for common understanding of referents and meaning of terms. However, the re-definition for grounding does not distinguish between the different levels where grounding can take place. The re-definition for mutual understanding however, does imply pragmatic level grounding, *"... In grounding, recognising speaker/writer intentions is also important"*.

As Clark and Schaefer (1989) say, it is not necessary to fully ground every aspect of the interaction, merely that the participants attain the grounding criterion mentioned in the previous chapter. According to Baker et al. (1999) what counts as a *'sufficient'* criterion of mutual understanding depends on the reasons for needing that information in the common ground in the first place, and can vary with the type of information and collaborators' local and overall goals.

Although the extra effort which is required for grounding can slow down interactions, it is an essential process which is necessary (Dillenbourg et al. 1996). Clark and Brennan (1991) view grounding as the collective process by which the participants try to reach this mutual belief and that grounding becomes most evident in the acceptance phase of the contribution model, originally proposed by Clark and Schaefer (1989). When no evidence is provided, it can be assumed that there are no further comments, which need to be discussed on that matter and that the listeners of this discussion are happy with what has been said on it. Lambert and Carberry (1992) say that it is assumed that a listener adopts a communicated proposition unless the listener has conflicting beliefs. Carberry and Lambert (1999) also argue that passing up the opportunity to reject an assertion in a collaborative dialogue communicates acceptance of it. However, according to Carberry and Lambert, an explicit acceptance is less common than implicit acceptances. A hearer taking over a conversation can also acknowledge that the last utterance was acknowledged implicitly, for example, by continuing with a topic (Cawsey and Raudaskoski, 1990). Hine (2000) also acknowledges that not all contributions are visibly acknowledged. Hine's comment is important, particularly when you have interactions which are not face-to-face and visible acknowledgements cannot be received. However, it is important to remember that grounding evidence can be either verbal and/or non-verbal.

Backchannel utterances are one way of providing evidence for grounding. Types of backchannel utterances can include *"uh-huh"* and *"mmmmh"*. Some authors (for example, Nofsinger, 1991; Allwood

et al. 1993) also distinguish amongst the type of grounding evidence which is displayed, for example agreement, acknowledgement, rejection and refusal. Others (for example, Jurafsky et al. 1998), do not make any distinctions, instead gathering together the most common lexical realizations for four dialogue acts (agreements, continuers, incipient speaker and yes-no answer) and drawing no distinctions on the different implications on the type of evidence which is provided.

Using the work of Boden (1994), Carletta et al. (2002) came to an interesting conclusion that participants in larger groups produce fewer backchannel utterances than those in smaller groups. This may be because in larger groups everyone does not get the opportunity to speak. Jackson et al. (2000) also confirms that everyone may not provide evidence at all times when there are more than two persons working together. In addition, dominant and timid participants, differences in language and familiarity with what is being discussed can all influence the potential number of backchannel utterances produced.

Non-copresence can also make it more difficult to ground utterances in order to make sure that they are mutually understood (Brennan and Ohaeri, 1999). This implies that the grounding process is not easy and the ease with which it can be established is dependent on the medium which is selected. Clark and Brennan (1991) have already examined constraints of grounding by looking at different media.

In the re-definition for grounding, repairs are also mentioned. It is important to note that repairs are not distinct from grounding, but take place in the grounding process.

The re-definition for repairing is examined next.

3.2.2.4 Re-definition for Repairing

'A process which includes strategies to improve grounding, based on negative feedback, evidence of not understanding, misunderstanding, and/or a breakdown in communication and collaboration from the speaker/hearer or writer/reader, disagreement, or talking at cross purposes'.

Brennan (1990) did not include the term repairs in her definitions for mutual understanding. As repairs are part of the grounding process a re-definition for repairing is included in this chapter as there was insufficient detail on this in the re-definition for grounding. As justified in section 3.2.1, it is important to explicitly define known relationships in a definition, as everyone may not be familiar with related literature. Therefore, by providing a separate re-definition for each term aids with understanding each term and the relationship which exists between them.

Literature (for example, Dillenbourg et al. 1996; Baker et al. 1999) refers to the term repair in the context of *'mending'* something, which may have resulted in some form of deviation. Generally, repairs are required when an utterance has not been understood (Cawsey and Raudaskoski, 1990). Mishearing and misunderstanding utterances, misconceptions, lack of hearing, reference failure and complex materials are some of the common causes of not understanding (Clark and Brennan, 1991; Cawsey and Raudaskoski, 1990; McRoy, 1995; Goodman, 1986). Schegloff et al. (1977) also reports that repairs can be used to deal with trouble in speaking, hearing and/or understanding during a conversation. The listener providing a cue to the speaker that some potential problems exist between their communication

usually initiates repairs (Goodman, 1986). Repairs can also be initiated by *"self"* or *"other"* (Schegloff et al. 1977). The re-definition for repairing includes what authors suggest to be the main reason for requiring repairs. The types of repair strategies which can be used to improve grounding have already been discussed in the previous chapter.

Everyday interactions often comprise of checks and repairs, which are automatic, transparent and do not disturb the flow of the conversation (Cawsey and Raudaskoski, 1990; Goodman, 1986). In the vast majority of cases, repairs are successful and quick (Schegloff et al. 1977). At other times more effort is required.

Passing up the opportunity to ask for a repair, assumes that the listener has conveyed understanding of that utterance (Clark and Schaefer, 1989). However, due to the collaborative nature of a conversation, when there is a misunderstanding, both conversational partners participate in repairing it (Goodman, 1986; Paek and Horvitz, 2000; Cawsey and Raudaskoski, 1990). Clark and Marshall (1992) propose two options to consider when making repairs, *horizontal* (to provide more information on the reference itself) or *vertical* (to strengthen the type of copresence on which their reference is based).

Extensive work has also been done on the turn in which repairs can take place, more specifically the typical sequences of repair moves (Schegloff et al. 1977; Schegloff, 1988; 1991). The sequential organisation of conversation provides for displays of mutual understanding. Schegloff (1991) uses the term mutual understanding, but offers no definition of this term.

Refraining from grounding can result in communication failure, and its repair can be costly in terms of time and effort (Brennan and Hulteen, 1995). Schegloff et al. (1977) also reports that efforts at repair can sometimes fail. Failure in this context refers to repair procedures which are initiated that do not yield a successful solution.

Section 3.2 has covered all the terms (ingredients) which are relevant to the re-definition for mutual understanding presented in section 3.2.1. However, the next section looks at how to monitor mutual understanding. The re-definition for mutual understanding as it stands, does not monitor mutual understanding. This definition only implies how the state of mutual understanding can grow, but does not show how mutual understanding evolves on a moment-by-moment basis. Currently, the original definitions by Brennan (1990) and the re-definition for mutual understanding presented in section 3.2.1 only identifes that mutual understanding is characterised by a state, but provides no insights into how mutual understanding can be monitored. Thus, to monitor the evolution of mutual understanding, more attention needs to be paid to the grounding process.

Monitoring mutual understanding is covered in the next section.

3.3 Monitoring mutual understanding

Before looking at how to monitor mutual understanding, it is important to first explain why it is necessary to monitor the evolution of mutual understanding. Firstly, existing literature has not drawn together in detail characterising and monitoring mutual understanding in multidisciplinary teams, so this thesis presents an in-depth insight into the evolution of mutual understanding in teamwork. The case study for

this investigation has been selected as it may provide interesting results when reporting the evolution of mutual understanding, as it includes several challenges, including some team members with a visual disability. In addition, the team interactions from this case study, were collected from a rich corpus of data, four face-to-face meetings, covering over 40 hours, and a total of 181 e-mail messages sent after the four face-to-face meetings, and before the fifth face-to-face meeting took place. Also, as mutual understanding evolves on a moment-by-moment basis it will be interesting to observe and to characterise when the state of mutual understanding during team interactions is reached. Further, monitoring the evolution of mutual understanding in this case study allows a set of guidelines to be extracted from the results, which aim to enhance and promote mutual understanding in team interactions which take place face-to-face and using e-mail, mirroring the interactions that were used in the case study project team. Lastly, by monitoring the evolution of mutual understanding, it can be an insight to designers and developers in the computer supported co-operative work (CSCW) community on how mutual understanding actually evolves when a team communicates face-to-face, on a regular but far apart basis, and uses a group e-mail address in between each face-to-face meeting.

Mutual understanding in this work is said to evolve on a moment-by-moment basis, and does not remain static. This is because the case study which provides empirical data for this investigation consists of data collected from attending four face-to-face meetings and e-mail messages sent after each face-to-face meeting, resulting in a vast amount of data being collected, over a 1-year period. Further, by identifying themes in the interactions the state of mutual understanding can be observed in the interaction. Also, as the discussions from one face-to-face meeting may continue through discussions by e-mail and in future meetings, it is assumed that the state of mutual evolves on a moment-by-moment basis and does not remain static. However, for discussions which do not continue either face-to-face or by e-mail, the researcher assumes that the state of mutual understanding is static.

Transcripts from the face-to-face meetings also reveal that evidence of the grounding process appears on a moment-by-moment basis, displaying evidence of common ground and mutual beliefs amongst the communicating parties. According to the re-definition for mutual understanding, common ground and mutual beliefs are necessary to reach mutual understanding.

In the context of teamwork it can be useful to monitor the progress that is made by team members towards reaching their goals by monitoring their interactions, and by identifying the state(s) of mutual understanding. However, as the re-definition for mutual understanding currently stands, this definition is insufficiently detailed for monitoring mutual understanding.

To monitor the evolution of mutual understanding, additional characterisations are required, and these are the states and sub-states for monitoring grounding on a moment-by-moment basis. The states and sub-states are characterised in relation to agreement, disagreement, holding a neutral position, reaching no agreement and no growth in mutual understanding. For states agreement and disagreement, sub-states were necessary to provide on a more finer level, identification of the different contexts in which agreement and disagreement can be found. Sub-states for reaching no agreement and achieving no growth in mutual understanding were also characterised but did not require the different contexts in which they could be found, unlike for states agreement and disagreement which did. In table 3.3, the five

states (agreement; disagreement; neutral position; no agreement and no growth) simply group together the related sub-state(s). An overview is provided on how the states and sub-states were characterised in section 3.3.1.4.

State of mutual understanding
State 1: Agreement (Relevant parties understanding that there is agreement indicating *confirmation* of understanding, signalling *belief, agreement*, and *acceptance* of the discourse chunks).
Sub-State 1.1: Agreement **Sub-State 1.2**: Disagreement **Sub-State 1.3**: Agreement to a neutral position
State 2: Disagreement (Relevant parties understanding that there is disagreement indicating *belief* of *rejection* and *refusal* of the discourse chunks, signalling disagreement).
Sub-State 2.1: Disagreement **Sub-State 2.2**: Disagreement to a agreement **Sub-State 2.3**: Disagreement to a neutral position
State 3: Neutral position (Relevant parties understanding that there is neither agreement nor disagreement)
Sub-State 3.1: Holding a neutral position
State 4: No agreement (Relevant parties understanding that there is no agreement yet. Listener responses in the discourse chunks are a combination of both states 1 and 2, but there is no evidence of any eventual *acceptance* and *agreement or refusal* and *rejection*. Thus the discourse chunk has not been resolved into either an agreement nor disagreement).
Sub-State 4.1: No eventual agreement
No Growth in mutual understanding
State 5: No growth (Relevant parties not reaching any growth in mutual understanding. No further states are identified, establishing no additional common ground and mutual beliefs.
Sub-State 5.1: No perceived growth in mutual understanding

Table 3.3: Five states and sub-states characterised to monitor grounding in face-to-face interactions

In summary, state and sub-state 1 (*agreement*) is required to establish sufficient common ground and mutual beliefs for current purposes. However, state and sub-states 2 (*disagreement*), 3 (*holding a neutral position*) and 4 (*no eventual agreement*) are required to show when team member belief states are altered, providing evidence that everyone does not hold the same mutual belief, but everyone does hold the mutual belief that everyone holds a different mutual belief. State and sub-state 5 (*no growth in mutual understanding*) shows that no additional common ground and mutual beliefs have been established, therefore displaying no evidence of growth in mutual understanding.

Now explained is the relationship between the states, sub-states and mutual understanding. States 1- 5 (State 1: Agreement; State 2: Disagreement; State 3: Neutral position; State 4: No agreement and State 5: No growth) and sub-states 1.1-1.3 (Agreement; Agreement to a disagreement and Agreement to a neutral position), 2.1- 2.3 (Disagreement; Disagreement to a agreement and Disagreement to a neutral position), 3.1 (Holding a neutral position), 4.1 (No eventual agreement) and 5.1 (No perceived growth in mutual understanding) monitor grounding evidence in an interaction at a fine level of detail.

Figure 3.3 is an extension of figure 3.2, showing how the states and sub-states to monitor grounding relate to the re-definition for mutual understanding.

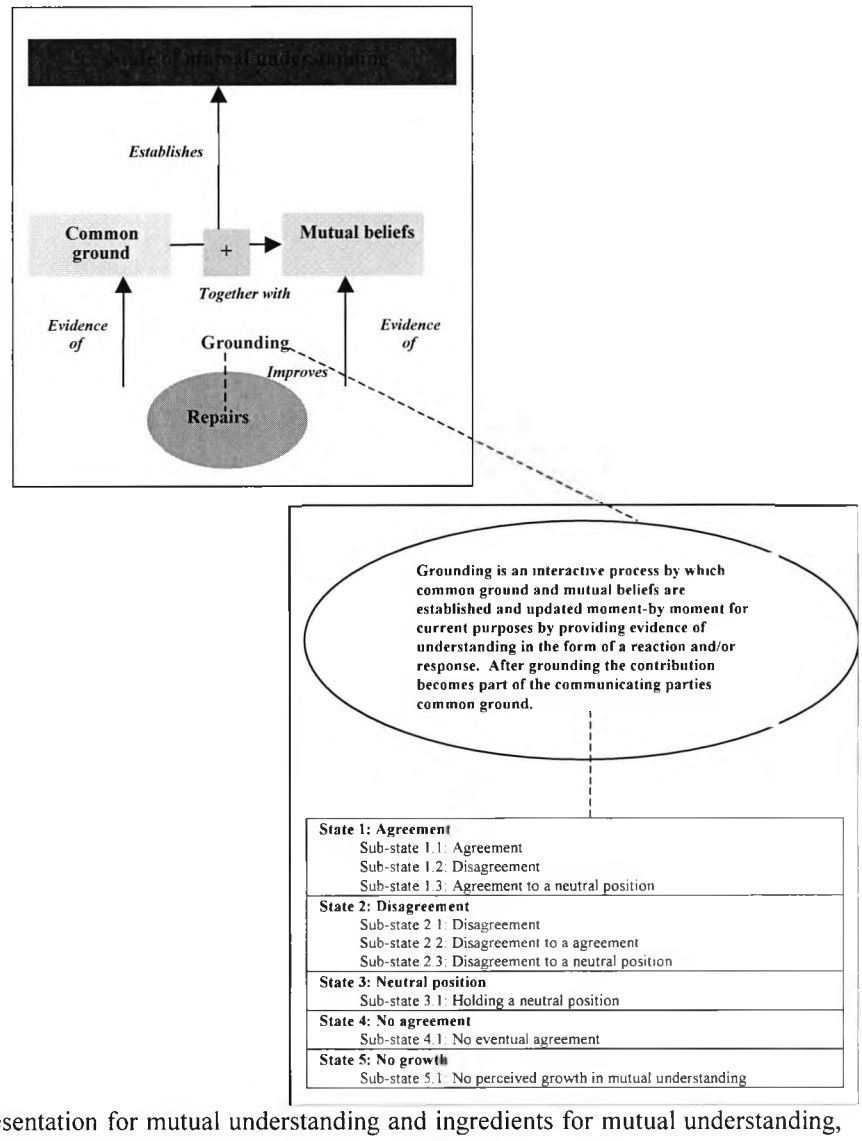


Figure 3.3: Graphical representation for mutual understanding and ingredients for mutual understanding, including a closer look at the states and sub-states to monitor evidence of grounding

Identification of the states and sub-states in an interaction show what mutual belief(s) members of the team hold. According to the re-definition for mutual belief, mutual belief is a belief that is held by each member of a team, and the members of this team believe that they all hold this belief. Mutual belief is also an important ingredient according to the re-definition for mutual understanding. However, the manner in which state 2 and sub-states 2.1- 2.3 have been characterised, identify that grounding may also reveal occasion's when team members beliefs alter. That is instances when team members do not hold mutual belief(s) on the issue which is being discussed in a particular interaction. What remains important here is that the team members are aware that members of the team are holding altered belief(s). Also, according to the re-definition for grounding, it is after grounding that the contribution becomes part of the communicating parties common ground, another important ingredient required for mutual understanding. Lastly, according to the re-definition for common ground, it is salient information mutually believed by each of the communicating parties. Thus, the characterisation of states and sub-states for monitoring evidence of grounding makes more explicit the relationships identified in the re-definition for mutual understanding. The re-definition for mutual understanding is *"The state at a particular moment in an*

interaction, where through the process of grounding, sufficient common ground and mutual beliefs are established for current purposes between team members. In grounding, recognising speaker/writer intentions is also important".

It must also be brought to attention, that there is no relationship between the word *'state'* in the context of the grounding states, and when using the term *'state'* when referring to the re-definition for mutual understanding. Brennan (1990) did acknowledge that mutual understanding is a state, but did not illustrate the different types of states that a listener could be in (for example, Clark and Brennan, 1991).

Therefore the concept of characterising states is not new, related work has already looked at the identification of states, but their work is not focussed on mutual understanding (for example, Brennan and Hulteen, 1995; Clark and Brennan, 1991). Brennan and Hulteen, produced an ordered list of system states, labelled from the perspective of the user, providing an adaptive feedback model for a spoken system, to which a user can delegate actions. Clark and Brennan, discussed states in relation to grounding, paying close attention to the acceptance phase of the contribution model. However, the researcher introducing the concept of sub-states is new. The sub-states simply set the context in which the states have been proposed. Introducing sub-states in this work was necessary to preserve the context in which evidence of agreements and disagreements were found during interactions. Each sub-state listed in table 3.3, identifies grounding evidence, and as shown in the re-definition for mutual understanding, grounding is important to establish common ground and mutual belief(s).

Sections 3.3.1 and 3.2.2 shows in detail how the states and sub-states for the two forms of interactions, which are being studied in this research topic, face-to-face interactions and e-mail interactions, were characterised. Two separate sets were required, due to the differences in style between face-to-face and e-mail interactions (Carletta et al. 2002 using the work of Daft and Lengel, 1986; Hine, 2000). Referring to one set of data from the investigation also highlights the differences between spoken and written interactions, further supporting the need to have two sets of states characterised, one for face-to-face and one for e-mail interactions.

Using data collected from this investigation, stylistic differences are illustrated. Table 3.4 shows an extract from a face-to-face interaction. Table 3.5 shows two e-mail messages looking at the same theme discussed in table 3.4.

Discourse chunk: Next meeting date, Source: 18/12/01 meeting transcript

Hazel: Are there other issues people would like to address
[Pause]
Ben: can we have a definite meeting date for next
Hazel: I think its March
Lucy: I think its 18th and 19th of March
Ronnie: on the 20th there is a Madrid conference
Hazel: I have the 11th and 12th, I have another meeting, in fact several people in this room have a meeting in London on 18th and 19th of March
Lucy: ah 18th?
Hazel: yes that's right, well
[Charlotte says something to Kenneth]
[People engaged in their own conversations]
Lucy: Do you want it Thursday or Friday?
Hazel: Thursday or Friday. I think it should be two days
Kenneth: uh-huh.
Lucy: then the 14th and 15th
Hazel: 14th and 15th what about 14th and 15th? That is ok with me. What about everyone else?
[People having their own conversations. cannot hear what they are saying]
Hazel: I will send an email to the whole consortium telling them of those dates
Jonathan: ok.

Hazel: so Jack, ok, ok, shall we declare the meeting closed for today, and then the technical partners can have fun tomorrow morning [Laughter] Meeting closed at 3.50

Table 3.4: Transcript extract to show differences between e-mail interactions

Next are two interactions which took place through e-mail, in Textual chunk: *Next meeting date*, Source: E-mail Messages 2 and 4.

MESSAGE 2 From: Hazel To: Project team Subject: Next meeting and workplan for WP1 Date: Saturday, December 22, 2001 2:00 AM Dear friends, ... Please note that the next meeting is now scheduled for Paris for the 14th and 15th March (partners may have the 11 and 12 March in their diaries, those dates are no longer valid). ... Hazel
MESSAGE 4 From: Desmond To: Project team Subject: AW: Next meeting and workplan for WP1 Date: Monday, January 07, 2002 2:03 PM Hi Hazel, ... So how about shifting the date for the Paris-Meeting to April, 3rd and 4th and giving our UGPs more time for their activities. Could there be another solution? What do the other partners think about it? Yours sincerely Desmond

Table 3.5: E-mail message samples to show differences between face-to-face interactions

Tables 3.4 and 3.5 shows that the main difference between the two forms of interactions are that spoken interactions have more frequent feedback from its listeners, which is often immediate, whereas written interactions do not always receive immediate feedback from its readers. Further, responses are not always sent when questions are asked. This was true for the question asked in message *4* as there were no additional messages received on that theme.

The next section looks at how the states and sub-states were characterised to monitor grounding evidence for face-to-face interactions.

3.3.1 Characterising states and sub states for face-to-face interactions

To monitor the state of mutual understanding in face-to-face interactions, five states and related sub-states are characterised to monitor grounding evidence on a moment-by-moment basis. The characterisations were achieved by two forms. One, by examining literature on negotiation, as Mäkitalo et al. (2001; 2002) brought to attention, that it is through the negotiation process that participants reach mutual understanding and that during the grounding process, there must be space for negotiation to reach mutual understanding. Two, by looking at one set of empirical data collected for this investigation to see how interactions were shaped as negotiations can be viewed as an example of team interactions. Those interactions were also examined to see what different types of grounding evidences were found. Using those grounding evidences the states and sub-states in table 3.3 were developed to monitor grounding.

The next section examines related literature.

3.3.1.1 Examining related literature

Negotiation literature (for example, Bartos, 1978; Zartman, 1978) defines negotiation as a process whereby parties of two or more persons reach a compromise and single decision when their interests are in conflict. Conflict is the reason why you need to negotiate (Baguley, 2003). Conflicts occur for a variety of reasons, disputes over values, roles, goals, authority, territory, scarcity of resources, misunderstandings, differentiation of tasks, disagreements and differences in orientations to time, structure, and interpersonal relations (Bowditch and Buono, 2001). According to Macdonald (2000), in businesses, diversity in people, processes and communication and management causes most conflict. Macdonald relevantly says that it is important to recognise that conflict is the natural result of people working together and that in the working environment, conflict can be constructive or destructive. Macdonald believes that the trick is to manage conflict in all its forms to encourage the constructive (helpful, valuable, useful, effective and productive) and aim to eliminate the destructive (harmful, ruinous and troublesome). Thus conflict is not always *'dysfunctional'* or *'bad'*; it can be constructive and lead to new ideas about novel approaches to organisational processes as well (Bowditch and Buono, 2001; Philips, 1992; Baguley, 2003; Macdonald, 2000). Galliers (1989) has also examined the role of conflict in achieving co-operation.

Baguley (2003) writes that all negotiations have six core characteristics: involve people (acting either as individuals, representatives, singly or in groups); have the thread of conflict running through them (from beginning to end); use well-established ways of exchanging things (such as bargaining or bartering); are almost always face-to-face (drawing strongly on the spoken word, gestures and facial expression); are all about the future and reach a conclusion by a decision that is taken jointly.

Baguley (2003) also says that if a negotiating team is going to work as a team, it should be large enough, but not too large; have a balanced mix of skills, abilities and experiences; have worked out the detail of who does what and when and consists of members who trust each other. Hindle (1998) also discusses timing in relation to holding negotiations. Christopher (1996) says that probably the most common cause of breakdown in negotiation is when parties talk too much and listen too little. A relevant practical tip provided by Hindle is to avoid negotiating on major issues at the end of the day as energy levels are often lower.

Lambert and Carberry (1992) based on the work of Clark and Schaefer (1989) argue that utterances must be grounded, or understood, by both parties. According to Lambert and Carberry, Clark and Schaefer only address lack of understanding, but not conflicts in belief. Conflicts in belief arise because agents are autonomous and heterogeneous (Chu-Carroll and Carberry, 1995). Conflict appears to play an important role in negotiation. Carberrry and Lambert (1999) sum up well, by stating that the collaborative activity of conversation is the negotiation of conflicting beliefs. To work effectively participants must resolve any conflicting beliefs. As Whelan (1999) has reported, conflict is a normal, natural, and necessary part of group life. The following authors (Bowditch and Buono, 2001; Philips, 1992; Baguley, 2003; Macdonald, 2000) have also argued that conflict is not always bad, as it can also be constructive.

Literature on negotiation (for example, Midgaard and Underal, 1977; Hindle, 1998; Oliver 2003) suggests that one of the main purpose for negotiation is to arrive at some kind of agreement. According to Hindle,

negotiation involves parties, who each have something that the other wants, reaching an agreement to exchange through a process of bargaining. Successful negotiating, an attempt by two people to achieve a mutually acceptable solution should not result in a winner and a loser. It is a process that ends either with a satisfying conclusion for both sides (*win/win*), or with failure for both sides (*loose/loose*). The art of negotiation is based on attempting to reconcile what constitutes a good result for you with what constitutes a good result for the other party. In negotiation you must be willing to compromise on the issue under discussion. Hindle also shares that negotiation involves mapping out a way of finding common ground for agreement or compromise. This goal may be achieved more readily by parties who have previously negotiated and are more likely to understand the concessions that the other side may be willing to make. Common ground in this context was not defined by Hindle.

Macdonald (2000), who examined conflict, which is also related to negotiation, writes that just because people work together in the same team or department, does not mean that they will get along with each other, or that they will agree to the same actions in specific situations. Macdonald's work therefore suggests that the individuals working together may not always agree with one another, further supporting the need to characterise the state and sub-states for disagreement. Further, Macdonald and colleagues show that work situations are centred around disagreements about facts; methods; goals and resources.

Holding a neutral position is not found reported in detail when the focus is on negotiation. However, Hindle (1998) does show that open body language can be used to signal remaining neutral. For example, arms can be used to imply indecision and wide eyes with a warm expression can be used to indicate willingness to be persuaded. Hindle's contributions to negotiation literature, therefore brings to attention that evidences do not just have to be just verbal, they can also be non-verbal.

Communicating parties can also fail to agree, which can lead to failure to reach an agreement (Bazerman and Neale, 1993).

The next section examines empirical data looking at evidence of negotiation.

3.3.1.2 Examining empirical data

Negotiation plays an important role during the interactive process of grounding (Mäkitalo et al. 2001; 2002). Table 3.6 is an example of discourse chunk *Reporting*, from the 18/12/01 meeting transcript, showing a negotiation taking place on the subject of how often the reporting period should be amongst the project team members as the team is not collocated and consists of partners from nine partner organisations from six different European Union states.

Discourse chunk: Reporting, Source: 18/12/01 meeting transcript

Jonathan: I think every 15 days everyone should provide a report of there work.
[Annie nods her head]
[Lucy is sitting with her hands on her mouth]
Hazel: No, not every 15 days
Jonathan: 3 weeks maybe
Hazel: once a month
[Kenneth nods his head]
Jonathan: once a month
Annie: I agree with Jonathan, the 15 days interchange of documentation with the partners. I believe that all the packages last at least 2 or 3 months and for example our work package 2 which started 20 days ago we have a 20 day delay because we are expecting the input from the partners that people are making and we have not received anything yet. So, we are doing our best here working with one person with Jaws and the wider documentation, but we are not experts on accessibility and we need your information and documents. We do not have anything now. We do not know what people are working on, or anything. We believe that we need to put more more strength into interchanging documentation. I think that every 15 days it is better than just once a month.

Example of negotiation – team members deciding on what the reporting period should be to communicate with the team. Proposals are put forward, suggesting every 15 days, every three weeks and every month

Table 3.6: Example of a negotiation found in the empirical data

Discourse chunk *Reporting*, was also one of several chunks examined to see what grounding evidence(s) could be found during a real life interaction. The interactions in this chunk are annotated in table 3.7 to show the grounding evidences found.

Discourse chunk: Reporting, Source: 18/12/01 meeting transcript

Jonathan: I think every 15 days everyone should provide a report of there work.
[Annie nods her head] — *agreement*
[Lucy is sitting with her hands on her mouth]
Hazel: No, not every 15 days — *disagreement to a agreement*
Jonathan: 3 weeks maybe
Hazel: once a month — *disagreement*
[Kenneth nods his head] — *agreement*
Jonathan: once a month — *agreement*

Annie: I agree with Jonathan, the 15 day interchange of documentation with the partners I believe that all the packages last at least 2 or 3 months and for example our work package 2 which started 20 days ago we have a 20 day delay because we are expecting the input for the partners that people are making nd we have not received anything yet. So, we are doing our best here working with one person with Jaws and the wider documentation, but we are not experts on accessibility and we need your information and documents. We do not have anything now. We do not know what people are working on, or anything. We believe that we need to put more more strenth into interchanging documentation. I think that every 15 days it is better than just once a month. — *disagreement*

Table 3.7: Annotated transcript showing grounding evidences in discourse chunk Reporting

In discourse chunk *Reporting*, there were the following types of grounding evidences found in this interaction: agreement; disagreement to a agreement and disagreement. There was also evidence that at the end of this interaction there was no overall agreement reached on what the reporting period should be.

Discourse chunk *Reporting*, also shows that there was a different context in which evidence of disagreement was found, that is disagreement to a agreement, rather than just simply characterising disagreement.

Identifying different contexts in which evidence of agreements and disagreements are found can provide more precise analysis, rather than just simply stating that there was evidence of agreement(s) and/or disagreement(s). This was another reason why the characterisation of sub-states was necessary.

Also, an extract from discourse chunk *Demonstration of screen reader use (Jaws) by a blind person using the Internet*, Source: 17/12/01 meeting transcript shows three additional types of grounding evidences that were not found in discourse chunk *Reporting*. This is presented in table 3.8.

Discourse chunk: Demonstration of screen reader use (Jaws) by a blind person using the Internet, Source: 17/12/01 meeting transcript

...

Peter: I do not know. Could be it is not switched on — **Neither agreement nor disagreement (remaining neutral)**

[shuffling in the background]

Ben: mhmm — **Agreement to remaining neutral**

...

Ben: And you leave your images on

Peter: Yes. — **Agreement**

Ben: because one of my colleagues is blind and he just puts them off

Peter: mhhm — **Agreement**

Ben: and he does not want to see all the description because to him it does not matter

Peter: yeah. — **Agreement**

Ben: Because he does not see the image show

Peter: some people say it is better to leave them on

Ben: yeah. Um — **Agreement**

Peter: I guess that this is a pretty high access so it does not really matter

Ben: Yeah. — **Agreement**

Peter: Cos it does not really affect the loading of the page, um

Ben: So JAWs is not really necessary?

Peter: For JAWs I think it is usually better to leave them on — **Disagreement**

Ben: to leave them on

Peter: yeah. Because sometimes it misses out if you do not — **Disagreement to a agreement**

Ben: mhmm — **Agreement**

Table 3.8: Identifying additional grounding evidences in discourse chunk Demonstration of screen reader use (Jaws) by a blind person using the Internet

Discourse chunk *Demonstration of screen reader use (Jaws) by a blind person using the Internet*, shows the three additional types of grounding evidences that were not found in discourse chunk *Reporting*. They are neither agreement nor disagreement (remaining neutral); agreement to remaining neutral and agreement to a disagreement. Two of the three grounding evidences in this discourse chunk shows that in the context of remaining neutral there was also an additional sub-context in which evidence of remaining neutral was found, that is agreement to remaining neutral.

Further, in discourse chunk *Discussion*, Source: 17/12/01 meeting transcript, there was evidence of understanding being reached that the number of months for the project is not being cut. However, after a

while in the same interaction there is evidence that Ronnie does not still believe that they do not need to complete all the work in the project. Table 3.9 shows that in a short space of time belief states altered.

Discourse chunk: Discussion, Source: 17/10/01 meeting transcript

...

Morris: well, but still after the, ah, there has been the first review and the project must go down to 12 instead of 24 months. And um it was striking to see for us, that for partner 7 that, the program was not consistent In fact we were asked to do uh, to perform a task that needed to be performed over a certain period of time, and so we were asked to perform it in a shorter period of time. So this is, this lack of consistency that really has raised our concerns.

Hazel: Sorry can I just say that is not actually what the situation is. **Disagreement**

Morris: yes. **Agreement to a disagreement**

Hazel: The project was not cut down from 27 months to 12 months.

Morris: uh-huh. **Agreement**

Hazel: it is going to be reviewed at month 12

[uh-huh being said in the background by some of the other team members] **Agreement**

Morris: ah right. **Agreement**

Hazel: that is a very different situation. That means that at month 12 we need to show we have made substantial sensible progress

Morris: uh-huh. **Agreement**

Hazel: as stated in the project, so that they then um approve for further funding

[Whispering in the background between Lucy and Ronnie]

Hazel: Not that we have to do the 27 months work in 12 months, we have to do sufficient work in the first 12 months

Jack: Right. **Agreement**

Hazel: then we get a continuation in the contract

Jack: yes. You see in the contract the technical annex is the same as the 27 month and what it says in the contract is ah this contract is for 12 months, and then [illegible] will be evaluated for the deliverables for um market for the first year, and not for the others **Agreement**

[Whispering in the background]

Ronnie: sorry, sorry

Jack: and I agree with Kenneth that uh we have, this project started in march or something like that and we have gone through all the preparation of the project and then the negotiation and we are now 3 months in the project. I am happy that problems are arising, um not problems but we are talking about problems and what actually the project is going on, but uh a lot of things, most of the things cannot be changed because we have a contract, a technical annex that was agreed by everyone so what we should do is to uh to talk about this and we cannot do main changes, we have to go with what we have in the best way we can do it. And that's the thing I think we have, we should talk now. How to do the best way what we should do.

Ronnie: I am sorry to interrupt you but how, we, we have a contract which is now if I understand correctly maybe I do not know. It is a one-year contract

Jack: Yes **Agreement**

Ronnie: it is not a 27-month contract

Jack: uh-huh **Agreement**

Ronnie: so it is correct to understand that we will have an evaluation after, after the 12 months period.

[Whispering in the background]

Ronnie: but this evaluation is for, is the, let's, lets say the condition not to have our contract continued, but to have a new contract

Hazel: Yes. But it is in fact the work continued **Agreement** **Disagreement**

Ronnie: the work continued

Hazel: Yes **Agreement to a disagreement**

Ronnie: But if you look at what Mr A S very clearly started one of the very things we cannot understood is that in this contract, in theory, in theory if we are right, if we do not mistake, we have to do the whole work

Hazel: no, no. **Disagreement**

Ronnie: the whole work regarding

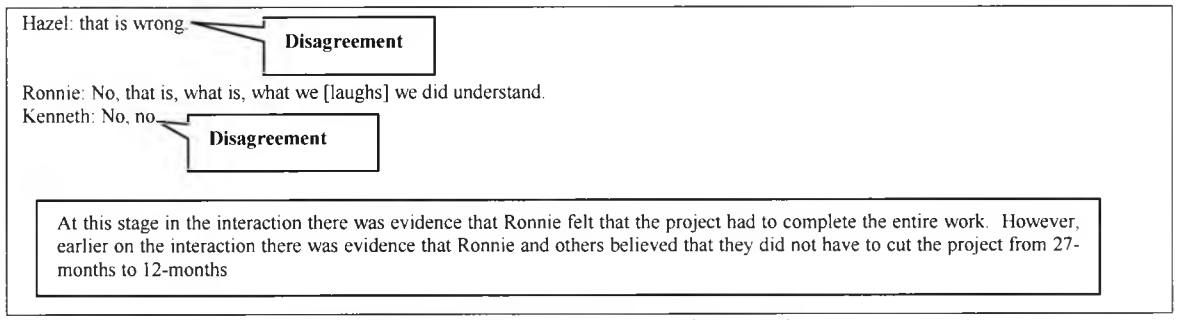


Table 3.9: Illustration of altered belief states in discourse chunk Reporting

In discourse chunk *Reporting*, from the 18/12/01 meeting transcript, the following types of grounding evidences were found in this interaction: agreement; disagreement to a agreement and disagreement. There was also evidence that at the end of this interaction there was no eventual agreement reached. In discourse chunk *Demonstration of screen reader use (Jaws) by a blind person using the Internet*, Source: 17/12/01 meeting transcript, there were three additional types of grounding evidence not found in discourse chunk *Reporting*. They were neither agreement nor disagreement (remaining neutral); agreement to remaining neutral and agreement to a disagreement. In discourse chunk *Discussion*, Source: 17/12/01 meeting transcript, there was evidence of belief states altering in separate but related discourse chunks.

The next section summarises this sub-section and the previous sub-section.

3.3.1.3 Summary of how the states and sub-states were characterised using literature and empirical data

Summarised now is what was found in the sample of empirical data examined in relation to what had been reported in literature.

Literature		**Data**	
Author	**Summary**	**Discourse chunk**	**Summary**
Mäikitalo et al. (2001; 2002)	• Through the negotiation process participants reach mutual understanding		
	• During the grounding process there must be space for negotiation to reach mutual understanding	*Reporting* (18/12/01 transcript)	• Shows a negotiation taking place with evidence of grounding identified, showing mutual understanding being reached
McDonald (2002)	• Do not necessarily get on with people you work with		
	• Do not necessarily agree with people you work with	*Reporting* (18/12/01 transcript) *Demonstration of screen reader use (Jaws) by a blind person using the Internet* (17/12/01 transcript) *Discussion* (17/12/01 transcript)	• Evidence of disagreements • Evidence of disagreements • Evidence of disagreements

Oliver (2003) Midgaard and Underal (1977) Hindle (1998)	• Objective of every negotiation is to reach agreement	*Reporting* (18/12/01 transcript)	Shows a negotiation taking place. Although it is an objective of every negotiation to reach agreement, this discourse chunk shows no eventual agreement being reached
Nofsinger (1991) Alwood et al. (1993)	• Distinctions made on types of grounding evidence, for example, agreement, acknowledgement, rejection and refusal	*Reporting* (18/12/01 transcript)	The following evidences were found in this interaction: • Agreement • Disagreement to a agreement • Disagreement • No final agreement reached
Bazerman and Neale (1993)	• Failure to agree can lead to failure to reach an agreement	*Reporting* (18/12/01 transcript)	Shows failure to reach an agreement. Evidence of altered beliefs are displayed
Jurafsky et al. (1998)	• Gathers together the most common lexical realizations for four dialogue acts (agreements, continuers, incipient speaker and yes-no answer)		
Baker et al. (1998; 1999)	• Views grounding as the interactive process by which common ground (mutual understanding) is constructed and maintained	*Demonstration of screen reader use (Jaws) by a blind person using the Internet* (17/12/01 transcript) *Discussion* (17/12/01 transcript)	The following evidences were found in this interaction: • Neither agreement nor disagreement (remaining neutral) • Agreement to remaining neutral • Agreement • Disagreement • Disagreement to a agreement The following evidences were found in this interaction: • Disagreement • Agreement to a disagreement • Agreement Overall, there was evidence of altered belief states in a related discourse chunk

Table 3.10: Summary of the relevant literature and empirical data examined

Overall, table 3.4 shows that a vast majority of what has been reported in literature has also been found in the empirical data examined. However, one of the main differences between what has been reported in literature and that found in the empirical data is the different grounding evidences. That is, literature does

not seem to distinguish on the different contexts in which evidence of grounding is found. For example, disagreement to a agreement, but simply characterising just disagreement.

Another difference found was related to the notion of no growth in mutual understanding. This difference was observed between empirical data and the literature, not vice versa. That is the notion of no growth in mutual understanding was characterised looking at the empirical data, but literature did not report this notion or suggest how it could be identified.

The next section provides an overview of how the states and sub-states were characterised

3.3.1.4 Overview of how the states and sub-states were characterised

To identify the states, the researcher compiled together the different grounding evidences. A state was characterised for *agreement*, *disagreement*, *remaining neutral*, *reaching no agreement* and *no growth in mutual understanding*. To show more detail, the different contexts in which the states were found were identified to produce the sub-states. To avoid duplicate states and sub-states, each grounding evidence that was found was gathered together, however only one state or sub-state was recorded and the list of duplicate states and sub-states was discarded.

Table 3.11 summarises the states and sub-states characterised from the grounding evidences found in the

empirical data. **State□Sub-state□□**Agreement□Agreement to a disagreement

Agreement	• Agreement to a disagreement • Agreement to remaining neutral
Disagreement	• Disagreement to a agreement
Neither agreement nor disagreement (remaining neutral)	
Reaching no agreement	
No growth in mutual understanding	

Table 3.11: States and sub-states characterised from the grounding evidences found in the empirical data

In the characterisation of sub-states simplicity was paramount. Therefore sub-state agreement was a simplified term for agreement to a agreement. Similarly, disagreement was a simplified term for disagreement to a disagreement.

For states holding a neutral position, reaching no agreement and no growth in mutual understanding, it was not necessary to identify the different contexts in which evidences of those states can be found. So, the sub-states which were proposed for these three states all relate to their high level state.

Also, to ensure that there was a complete set of sub-states characterised in table 3.11, it was important to identify additional contexts in which the sub-states may be found. The following sub-states all related to state disagreement and can be added to this table, as it appears that there are some sub-states which may be found in interactions, but evidence of them was not found in the sample examined. They are disagreement to a agreement and disagreement to remaining neutral.

So, summarised here is the manner in which the states and sub-states to monitor grounding evidence on a moment-by-moment basis was developed. Overall, identifying different contexts for agreements and disagreements was important in the categorisation of sub-states to monitor evidence of grounding during an interaction. The state and sub-states for disagreement were important as negotiation is not viewed as a simple process. The one set of data which was collected for this investigation also confirms that negotiation is not a simple process. The data also revealed that reaching an agreement can include iterations of agreement, disagreement and sometimes with the communicating parties holding a neutral position, therefore neither agreeing nor disagreeing with what has been said. In addition, in certain situations an agreement is also not eventually reached, particularly when there is a combination of agreement, disagreement and holding a neutral position found in an interaction.

It is also important to remember that speakers and listeners cannot be assured to have the same beliefs, contexts, perceptions, backgrounds, or goals at each point in a conversation (Goodman, 1986). Goodman's work further supports why there is a need to include states for disagreement, remaining neutral to what has been said and not reaching an overall agreement.

In addition, since negotiation involves a process of gradual convergence towards agreement or compromise, the characterisation of states and sub-states for disagreements and holding a neutral position is relevant towards this convergence. However the state and sub-state for not reaching an overall agreement is not relevant towards the convergence for reaching an agreement or compromise, as this type of situation usually expects an agreement or compromise to be reached. The reason why the researcher included the state and sub-state for not reaching an overall agreement was because empirical data showed that there was a situation when no overall agreement was reached, for the issue being discussed in

discourse chunk *Reporting*. Discourse chunk *Reporting*, displayed evidence of communicating parties agreeing and disagreeing to what had been said. However, in this discourse chunk there was no evidence of communicating parties holding a neutral position to what had been said, only evidence of agreements and disagreements. Bazerman and Neale (1993) supports that communicating parties can also fail to agree, thus failure to reach an agreement. Discourse chunk *Reporting* shows in real-life what Bazerman and Neale described.

The characterisation of states and sub-states was an iterative process. Table 3.3 presented the final version of the characterisation of states and sub-states to monitor grounding, which in turn is able to monitor the evolution of mutual understanding, according to the re-definition for mutual understanding.

The next section looks at the process by which grounding can be monitored for e-mail interactions and a description of how the states for e-mail interactions were characterised.

3.3.2 Characterising states for E-mail interactions

Now described is the process which was followed to characterise the states for e-mail interactions. Table 3.12 shows the set of states which have been categorised to monitor grounding in e-mail messages. A sample of ten messages sent to the mailing list address were observed to characterise the states. Those messages were sent after the first face-to-face meeting and were examined to see what types of messages were sent to the project team after a face-to-face meeting had taken place.

Looking at this sample reveals that e-mail interactions require only states and not sub-states to be characterised to monitor grounding. This is because the researcher is using the entire message for analysis and not individual utterances like the face-to-face interactions did. Hence, characterising states for e-mail interactions did not require a breakdown of the different aspects of each state as face-to-face interactions did in table 3.3. In addition, Carletta et al. (2002) using Daft and Lengel's (1986) work reports that media such as mass e-mailing gives little opportunity for monitoring, feedback and clarifications, further supporting the notion that the set of states and sub-states in table 3.3 could not be used for e-mail interactions. This is because the set of states and sub-states which were characterised were focussing on grounding evidence, and as literature in the previous chapter has shown, grounding is related to feedback evidences. Also, Baguley (2003) has relevantly reported that you think more than you speak and you often speak more than you write, further accounting for differences that exist between speaking and writing. According to Carletta and colleagues, media can also affect the style of interaction. Others (for example, Dix et al. 1998; Kraut et al. 2003; Brennan, 1998) report that there are differences in the types of grounding evidence, that are found when looking at different media as well. Dix et al. reports that grounding constraints are weaker in text-based compared with face-to-face interactions, making it more difficult to obtain common ground. Similarly to Dix et al. (Kraut et al. 2003; Brennan, 1998) state that mutual understanding is easier to achieve when communicating either face-to-face and/or via video, as you can see the person that you are communicating with.

Related to this work, as shown in the previous chapter, the example by Dix et al. (1998), referred to widely in literature as well (for example, Brennan and Hulteen, 1995; Clark and Brennan, 1991), appropriately illustrates how a sender of a message would not know what state the receiver of an e-mail

message is in. The receiver can be in one of four states as table 3.13 shows. This example is relevant as it focuses on e-mail interactions.

State 0: B didn't notice that A uttered any u
State 1: B noticed that A uttered some u (but wasn't in state 2)
State 2: B correctly heard u (but wasn't in state 3)
State 3: B understood what A meant by u.

Table 3.13: Four states to characterise the receiver of an e-mail message

In a medium such as e-mail, where there are two people involved in the interaction, A (*receiver*) and B (*sender*), B's lack of response can be ambiguous. For example, did A not get the message? Did they get it and not read it? Did they read it and choose not to respond? Did they not understand it? Or what? A would not know whether B is in state 0, 1, 2, or 3.

The states in table 3.13, although very relevant to this work, they cannot be applied directly to e-mail messages, to monitor grounding, and thus the evolution of mutual understanding, as this research is not looking at face-to-face and e-mail interactions independently, but together.

To characterise the states for e-mail messages it was important to see what different messages were being sent. It was also important to see if the messages were being sent in relation to items that were discussed during the face-to-face meeting and to identify those messages which were being sent, but were not discussed during the face-to-face meeting. By looking at the messages it also revealed which messages had a discussion thread forming and those messages that did not. The researcher also assumed that when there was no message sent in relation to an e-mail that had been sent by another team member, members of this project team accepted what this message contained as there was no further evidence of altered beliefs, made apparent by another e-mail message being sent to the team addressing this issue. This was the basis on which the states were characterised.

Although the states which have been characterised do assume that before e-mail messages are received by team members, that they have already had an initial face-to-face group meeting, the researcher is aware that this is not always reflective of all types of interactions. However, the main purpose of the characterisation of states was to make it relevant to the topic of this research and to the investigation that it is undertaking. Therefore it was necessary to look at face-to-face and e-mail interactions together and not as two separate interactions.

The following two points are also important when applying the characterisation of seven states shown in table 3.12. First, when looking at state 1, no distinctions are made on the type(s) of message that is sent to the team. For example, making a request, sending comments, offering suggestions etc. Second, to identify a discussion thread, focus should not just be kept on the message header as a message can be sent using an out of date header. Messages can also be sent with no information provided in the header field. Lastly, as a single message can relate to more than one discussion thread, it is important to not assume that one header includes only one discussion thread.

In the sample of messages which were examined, there was no evidence of team members sending a message to the team using an out of date header. However, the researcher has experienced receiving messages with out of date subject headers. Looking at messages *6* and *14* proves that e-mails can be sent

without including a subject heading. Also, messages *8* and *24* show evidence of subject headers including reference to only one theme, however, closer examination of the messages by the researcher revealed two themes.

MESSAGE 6
From: Thomas
To: Project team
Date: Friday, January 11, 2002 7:40 PM

No subject heading

like Cathy and partner 3, I worked on the problems encountered by visually mpaired people on web sites. So I send you my report and conclusions. Sorry it's a french version , I'll translate this document later. I add a second document (e-learning) concerning my first impression about e-learning. And i have just a question about the e-learning portal : should we prefer to create our own content or should we just index others sites?
Best regards
Thomas

Table 3.14: Example of a message sent with no subject heading

MESSAGE 14
From: Thomas
Date: 18 January 2002 19:29
To: Project team
Subject: (No subject)

No subject heading

Dear Hazel I'm going to be very brief because i think your questionnaire is very clear and well conceived.
I have only one suggestion about the questions 12 and 13. To my point of view it would be better to develop them in order to know for example what kind of support people are looking for : scholarly support, sites for pure education, or encyclopedias. Do they consider and prefer that e-learning could one day fill the place of "ordinary school"?
But that's all for me, it was perfect.
Best regards
Thomas

Table 3.15: Example of a second message sent with no subject heading

MESSAGE 8
From: Hazel
To: Project team
Subject: Project: WP1 Questionnaire
Date: Friday, January 11, 2002 9:16 PM

Includes only one theme

Theme 1: WP1 questionnaire

Dear Friends,

Here is a first draft of a questionnaire on unmet learning needs of visually impaired people. I have also placed it on the ftp site in a new directory called WP1. It definitely needs some more work, so I welcome your comments and suggestions. I have imagined that this questionnaire could be distributed by email to some participants, given verbally, printed in large print, recorded onto audio tape ... etc. So I have tried to keep the questions very clear and simple and the format very straightforward.

I'm still working on the protocol for the study of current elearning applications, I will distribute that on Monday morning.

Cheers,
Hazel

Theme 2: Protocol for the study

Table 3.16: Example of a message sent with one subject heading but the message relates to more than one heading

MESSAGE 24
From: Hazel
To: Project team
Subject: Protocol for the evaluation of current elearning applications
Date: Wednesday, February 06, 2002 7:07 PM

Includes only one theme

Theme 1: Protocol for the evaluation

Dear Friends,

Here is the final protocol for the evaluation of current elearning applications. I didn't receive any comments from partners about this, but Mary had some excellent ideas, so it has been thoroughly overhauled.

I have only received a list of participants who will participate in this study from Thomas. His range of participants looks very good. Could other partners please let me know as soon as possible how they are going with the recruitment for this evaluation.

Best regards,
Hazel

Theme 2: List of participants

Table 3.17: Example of a second message sent with one subject heading but the message relates to more than one heading

States 1 and 4 in table 3.12 are required to establish sufficient common ground. States 2, 3, 5 and 6 are required to establish mutual beliefs for current purposes. State 7 shows that no additional common

ground and mutual beliefs have been established, therefore displaying evidence of no growth in mutual understanding.

State of mutual understanding
State 1: A message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team
State 2: A discussion thread emerges from the original message, which was discussed during the face-to-face meeting
State 3: No discussion thread emerges from the original message, which was discussed during the face-to-face meeting
State 4: A message is sent to the group, but not following discussions which took place when together at the face-to-face meeting
State 5: A discussion thread emerges from the original message, but was not following discussions which took place when the team was together at the face-to-face meeting
State 6: No discussion thread emerges from the original message, which was not following discussions which took place when the team was together at the face-to-face meeting
No Growth in mutual understanding
State 7: No growth in mutual understanding. In this state actions discussed face-to-face are not followed up by e-mail (no additional common ground and mutual beliefs are established)

Table 3.12: Seven states characterised to monitor grounding evidence in e-mail interactions

One set of empirical data was also used in order to assess the suitability of the seven states characterised to monitor evidence of grounding in e-mail interactions. The characterisation of states was an iterative process. Table 3.12 presents the final version. The next chapter explains the application of the characterised states. The purpose of this chapter was only to show how the states and sub-states were characterised to monitor evidence of grounding.

The next section concludes this chapter.

3.4 Conclusion

This chapter has provided a re-definition for mutual understanding using the definitions by Brennan (1990) as a starting point. Re-definitions for other related terms (ingredients for mutual understanding) are also provided (common ground, mutual belief, grounding and repairing). These four terms (ingredients) are already found reported in existing literature, but re-definitions were provided for each, so that they are interpreted in the manner intended by the researcher.

Brennan (1990) defined mutual understanding simply as *"A particular kind of mutual knowledge - the state at a particular moment in a conversation where both people are reasonably sure that they're jointly focused on the same thing, and that they both understand what has just been said regarding it".*

The re-definition for mutual understanding, which has been proposed in section 3.2.1 is "*The state at a particular moment in an interaction, where through the process of grounding, sufficient common ground and mutual beliefs are established for current purposes between team members. In grounding, recognising speaker/writer intentions is also important.".*

This chapter has also provided characterisation of states and sub-states to provide evidence of grounding and to monitor the evolution of mutual understanding in face-to-face and e-mail interactions. To assess

the suitability of the re-definition for mutual understanding and states and sub-states to monitor grounding evidence, one set of empirical data from this investigation was used. In addition, relevant literature was also examined to produce the re-definition for mutual understanding and states and sub-states to monitor grounding evidence.

The next chapter looks at the methodology, which was employed to undertake this research investigation.

Chapter 4

Methodology

Chapter 4: Methodology

For this investigation empirical data was collected for one case study that was analysed in depth qualitatively. Some quantitative analysis was also performed. One multidisciplinary project team that communicated both orally (at face-to-face meetings) and in writing (through e-mail messages) was observed to see how mutual understanding evolved when the team was interacting together as a group for 1-year of a 27-month European research project. The purpose of this chapter is to describe the methodology which was employed, including discussions on the choice of data collection methods and ways of analysing the empirical data.

4.1 Using a case study method to collect empirical data

Case studies are a common way to perform qualitative inquiry, particularly when examining *'how'* or *'why'* factors within real-life contexts (Yin, 1989; Stake, 2004). Case studies also allow you to look at the world through the researcher's eye, and in the process to see things that otherwise might not have been seen (Donmoyer, 2000).

To collect empirical data for this investigation, a single descriptive case study approach was employed. This approach was selected as case studies support the desire to understand complex social phenomena, and descriptive case studies allow the tracing of events over time (Yin, 1989). To assess the quality of a case study, rich data needs to be presented (Donmoyer, 2000). Basing a case study on different sources of information can also result in more convincing, accurate findings and conclusions (Yin, 1989; 1993; Gillham, 2000). For example, Gillham (2000) recognises that case study is viewed as a main method and within it different sub-methods are used, for example, interviews, observations, document and record analysis and work samples. Robson (2002) also argues that in a case study, the main focus should not only be on the case, but its surrounding contexts must also be taken into account. Robson, like Gillham supports the view that case studies involve multiple methods of data collection.

In this investigation to collect data, formal face-to-face meetings were attended as a silent observer, e-mail messages sent to the team were received, telephone interviews were conducted, questionnaires were circulated, and the researcher was given access to relevant project documentation.

The project team used in this investigation was not intended as a representative sample of all types of project's and their teams. It was simply chosen to gain a deeper insight into how mutual understanding evolves in a multidisciplinary team that communicates together face-to-face and using e-mail. This investigation was also conducted to gain a deeper insight into how e-mail is used to communicate with its team in between formal face-to-face consortium meetings and to examine the role that e-mail plays in this process.

The case study method suits this type of investigation due to the level of detail it provides (Hammersley and Gomm, 2000; Hessler et al. 1993), its applicability to situations in a real life context that examine *'how factors'* and because it allows events to be traced over time (Yin, 1989). In the context of this investigation, tracing mutual understanding over time is important, as mutual understanding does not

remain static. The previous chapter has already discussed why mutual understanding is not considered static.

The project that was the case study for this investigation is described next.

4.1.1 Case study overview

A multidisciplinary European research project team that has nine partners from six different European Union states was used. The partners comprised of a telecommunication company, a large charity in the United Kingdom (UK) serving the needs of blind and partially sighted people, an association for the blind in Italy, the Federation of the blind in France, the German federation for blind and visually impaired people, research groups from two universities and a non profit making European organisation for the blind and partially sighted.

September 2001 marked the start of the 27-month project and a project kick-off meeting was held in Madrid. All project partners were invited to this meeting, which was an opportunity for everyone to meet together face-to-face and also to review the work which had brought this project team together.

Language barriers, national culture differences and communicating effectively with blind and visually impaired persons were some of the challenges of this team. Due to those challenges some interesting results are expected in the next chapter.

The English language was used for all team interactions. This is because the English language would have been common to all partners involved in this project. According to Hotcourses (2004), English is the second most widely spoken language in the world. However, the English language was not the first language of several team members. As a result some team members were not able to participate in the discussions. Some team members invited a translator to the face-to-face meeting as well.

Formal face-to-face consortium meetings were held once every 3-months and e-mail messages were sent in between each meeting to stay in touch with the team. A file transfer protocol (FTP) site to store all project-related documents that the team needed access to was also used. To protect the confidentiality of the project, its name is not disclosed, and pseudo names belonging to the same gender are used to refer to members of this team. Yin (1989) acknowledges that although it is best to try and use the original name of the case study and members, there are occasions when anonymity is necessary. Anonymity was required for the project team that was used for this case study. Team members with a visual disability (impairment and blindness) are also identified. This identification is important, particularly for presenting the results in the next chapter.

The aims, objectives, innovations and milestones of the project are examined next.

4.1.1.1 Aims, objectives, innovations and milestones

Partner 1, a telecommunication company in Spain initiated this project and a multidisciplinary team was formed to prototype technology for blind and visually impaired computer users. This team also comprised of team members who had not all worked together before. However, there was an exception of a few team members who had worked together in the past on other collaborative European projects.

For example, partner 3 (a large charity in the UK serving the needs of blind and partially sighted people) and partner 8 (research group at a London university).

In this project team members were chosen according to the areas of expertise and skills that they had. The aim of this project was to develop a voice based technology system for designing websites accessible to visually impaired users by means of voice. The project had three main objectives:

- Facilitate visually impaired persons access to the Internet and design of accessible web pages,
- Provide web developers with an authoring tool, which facilitates the creation of accessible web pages. This tool should be integrateable with any existing well-known web-authoring tool or at least be compatible, and
- Development of an accessible portal which can be browsed by means of speech.

Demonstrating the utility and usability of voice interaction by developing an e-learning web portal for visually impaired students which uses voice interaction was one of the main objectives of this project. As a test of this solution an e-learning portal oriented to visually impaired people was designed. The pages, which are created by the project's web authoring tool, were to be fully compatible with existing personal computer (PC) voice controls and screen readers. A screen reader is a piece of software that reads everything that is on a page, this includes both interesting and non-interesting paragraphs) that are currently in use. Examples of screen readers are: Jaws, Baum and HAL.

The aim of the project's portal was to offer a global community for visually impaired people, learners and other users interested in this subject. The portal was to be an active web site with news and articles about pedagogy and e-learning. Accessible pages with voice were to be created for portals of special interest to visually impaired people.

As empirical data was only collected for the first year of a 27-month project, it was known that the project team would not have met all three objectives by that time. The project overall was aimed to contribute towards the improvement of integrating people with visual deficiencies, making easier for them the access to the world of the Internet. This project aimed to standardise and synthesise voice recognition technology in the field of web browsers, allowing any blind person to access the contents that the Internet universally distributes. The synthesis and recognition was going to be based on an open language called VoiceXML. In addition, ConPalabras, the VoiceXML plug-in which has already been developed, is going to be used. The project also used existing voice technology to allow visually impaired persons to fully assimilate and interact with web sites.

The four innovations of this project are:

- An accessible tool, which allows designing accessible web pages,
- Speech integration enabling a dialog between the user and the web page,
- Using latest technologies for speech processing, and
- Building a portal accessible via voice.

The project has also identified a number of key milestones and expected results. At the end of the 27-months, the eight milestones and expected results are:

- Manual for web interpretation, information extraction and requirements for visually impaired persons,
- Manual with the requirements of web design tools for visually impaired persons,
- Web design tool using voice,
- A multilingual European e-learning portal using voice,
- Creation of an accessibility certificate for the project,
- Exploitation and dissemination of the results taking advantage of the communication channels of the National and European associations for the blind; publicity campaigns (Internet, magazines and the media); participation in exhibitions and conferences; presence in standardisation forums; contacting the government organisations to make them understand the power of the project approach and the importance of the prototyped tool and to contact the main portals, to inform them that the use of this tool could result in a large number of portal users. The dissemination and exploitation activities are expected to start early in the project. Potential users of the proposed tool not only need to be convinced of the tools advantages, but also of the need for information accessibility. In month six of the project, a first version of the dissemination and use plan will be delivered to the commission. In addition, this project will be reviewed after its first year. Lastly, all documents/manuals will be provided in Spanish, English, French, German and Italian to reflect the National languages of the partner organisations involved in this project.

The next section for each of the partners looks at their contributions to the project.

4.1.1.2 Summary of partner contributions to the project

Table 4.1 lists the nine partners that are involved in this project.

Partner Number	Background
1	A telecommunication company
2	A telecommunication company
3	A large charity in the UK serving the needs of blind and partially sighted people
4	An association for the blind in Italy
5	The federation of the blind in France
6	The German federation for blind and visually impaired people
7	A non-profit making European organisation for the blind and partially sighted
8	A research group at a London university
9	A research group at a Belgium university

Table 4.1: Identifying the nine partners that are involved in the project

Tasks for this project are divided into seven work packages. Each work package identifies the tasks that are necessary for the different areas that the project is working towards. Skills and experiences of the project partners identify the leader of each work package. Other partners with major involvement to each work package are also identified. Table 4.2 provides more detail on the projects seven work packages.

Work package	Partner who is the leader of that work package	Start month	End month	Other partners with major involvement
1: User requirements of accessibility and web authoring tools	8	Sept 01 (1)	Aug 02 (12)	3, 5, 6, 9, 4, 1 and 2
2: Plugins for speech recognition and synthesis integration, with the possibility of adjusting the speed of the synthesiser	2	Nov 01 (3)	May 02 (9)	1

3: Tool development	2	Feb 02 (6)	Aug 03 (24)	1, 9 and 4
4: Creation of an accessible learning portal	1	Aug 02 (12)	Aug 03 (24)	7, 2 and 9
5: Evaluation	8	May 02 (9)	Nov 03 (27)	3, 4, 5 and 6
6: Dissemination, Standardisation and Exploitation	1	Nov 01 (3)	Nov 03 (27)	7, 2, 3, 4, 5, 6, 8 and 9
7: Project Management	1	Sep 01 (1)	Nov 03 (27)	None

Table 4.2: Work package leaders and contributors

Table 4.2 illustrates that in the first year of this 27-month project; work in the following six of seven work packages (1, 2, 3, 5, 6 and 7) had already begun. This is because work packages 1, 2, 3, 5, 6 and 7 all started in month 1 of the 27-month project, September 2001. Only work packages 1 and 2 will be completed, if the project runs according to schedule at the end of the project's first year.

The next section looks at the experiences and roles of partners that are relevant to the different dimensions that partners are working on.

4.1.1.3 Experiences and roles

Experiences and roles relevant to this project can be summarised along the following dimensions listed in table 4.3.

Dimension	Experience
Experience with disabled user groups	Partners 4, 5, 6, 3 and 7 are organisations dealing directly with disabled citizens. Their primary functions are to assist those citizens. Partners 9 and 8 are both research groups who have worked directly with users and have considerable experience and reputation in various areas related to user-centred design, evaluation and assessment
Experience of designing and implementing assistive technology for disabled people	Partners 9, 3 and 8 have all had experience in the field of designing and implementing assistive technology for disabled people
Experience of evaluating assistive technology for disabled people	Partners 4, 5, 6, 3, 7, 8 and 9 have all had experience in the evaluation of assistive technology for disabled people. Partner 8 has a particular expertise in this area
Experience with analysing and modelling information structures, users and tasks	Partners 9, 3 and 8 all have experience in the domain of modelling information structures and developing user and task models for use in assistive technology
Experience in access to the World Wide Web for disabled people	The World Wide Web consortium has an initiative on accessibility in which partners 9, 3 and 8 are actively involved. All user partners (3, 8, 7, 5, 4 and 6) are experienced in helping disabled people use the web
Experience with the development of World Wide Web based applications	Partners 1, 2, 9, 3 and 8 all have experience in the development of World Wide Web applications. Partners 9 and 3 have made special studies in the area of XML and its use for disabled people
Experience with the development of voice and speech based applications	Partners 1 and 2 have a particular expertise in voice and speech developments
Experience in large multinational and multidisciplinary project's	All partners are experienced in participating in multinational, multidisciplinary project's, particularly in the field of disability. Partners bring an impressive array of expertise and experience from a wide range of disciplines appropriate to the project challenges.

Table 4.3: Experiences of areas relevant to this project at partner level

Table 4.4 shows the role of each partner in the project.

Partner	Role
1	To lead management and exploitation work packages. The group specialised in Internet and multimedia content will lead the e-learning portal creation and will have strong participation in the project tool development
2	Their wide experience in voice solutions and software development makes this partner leader of the project tool development and integration of the plug-ins

3	Their participation will be specially concentrated in the requirements and evaluation work packages. This will make good use of their experience in assistive technology, analysis and modelling of information structures and their experience with disabled user groups
4	Will concentrate in user requirements and evaluation. Their visually impaired software engineers will participate in the software development
5	Will work mainly in user requirements and evaluation
6	Will use their experience with user groups in Germany in the user requirements and evaluation work packages
7	As the organisation representing the interests of blind and partially sighted-people in Europe, this partner will lead the dissemination tasks and will be responsible for compiling the information of interest for visually impaired people in the e-learning portal
8	As experts in design and evaluation of assistive technology, they will lead the requirements and evaluation work packages
9	As experts in design of assistive technology and World Wide Web access and development for disabled people, this partner will have strong participation in the requirements and tool development work packages

Table 4.4: Roles of each partner in the project

There was no pre-screening or pre-selection of team members that were working together on this project. The researcher was simply observing and monitoring the evolution of mutual understanding in a real-life project team. Partner 1 had selected team members to work together based on their skills, experiences and potential contributions to this project.

The next section concentrates on the methods that were used to collect data for this investigation.

4.2 Data collection

For this case study empirical data was collected for 1-year. Methods selected were observations, receiving e-mail messages sent to the project team, conducting telephone interviews and distributing questionnaires to team members. Mainly qualitative data was gathered, but quantitative data was also collected.

Prior to collecting empirical data, each team member was given an informed consent form to show that his or her participation in this investigation was voluntary. The form included the researcher's intentions and what was required to collect data for this case study. A copy of this form can be found in appendix *A*. Informed consent forms were also given to new members of the team when they joined the project after its start in September 2001.

Each data collection method, which was selected, is now described in turn.

4.2.1. Observational data

According to Gillham (2000), observation is one of the most direct ways of obtaining data. Mulder et al. (2002) and Mulder (2004) also reports that their richest sources of data were the observations and transcripts of their video meetings. In 1-year, as a silent observer, the researcher attended four formal face-to-face consortium meetings, totaling over 40 hours. Other terms that are used to refer to silent observers include *'disinterested'* observers (Blaxter et al. 1996) and *'total researcher'* (Bryman, 2004), based on the three levels of participation observer roles by Gans (1968). In this investigation, silent observation referred to no involvement or participation in the flow of events in the situation observed by the researcher. The purpose of using observations was to get rich insight into the actual team communication.

The project team which was the case study for this investigation was assured that it was only the interactions between team members that were being observed when the researcher was attending the formal face-to-face consortium meetings as a silent observer. Data was collected during the formal face-to-face consortium meetings by passively observing and monitoring all discussions and interactions. The researcher's presence was not disruptive during these meetings, and team members were not required to act in any particular way or to adopt any particular behaviour.

Holding the formal face-to-face consortium meetings once every 3-months was a decision made by the project team and one that this researcher had neither involvement nor influence. It is not known if 3-monthly intervals are the norm for European research project teams to hold regular face-to-face meetings. In this investigation, as the researcher had no pre-condition stating how often the team was required to meet together face-to-face, the 3-monthly interval was not a matter of concern. Each meeting was planned for two days - one full day and one half day. Due to project partners belonging to six different locations in the European Union, different partners in different states would host each meeting. Therefore, each meeting not only took place in different European states, but in different settings too.

Each face-to-face meeting generally lasted 1-½ days to two full days. The team decided that a one-day meeting would not be beneficial. This is because many team members had to travel large distances to attend each meeting. In addition, not all team members belonged to the European Union state which was hosting the meeting. Baguley (2003) although identifying that project meetings are important, his opinions differed on how long each meeting should last. Baguley argues that the best project meetings are brief, lasting no longer than 1-½ hours. Meetings of this short duration would not have suited this case study project team for reasons already discussed. In addition, Baguley had said that the meetings should involve no more than ten people. However, the case study for this investigation consists of more than ten persons, contradicting what Baguley had proposed.

To preserve the verbal interactions during each meeting, audio recordings were made using an Aiwa minidisc recorder AM-F5. This media was chosen, as it is small in size, and would appear unobtrusive to team members. Bryman (2004) also recommended the use of minidisc recorders over cassette tape recorders because the recording quality is usually more superior.

In addition, the hand written notes would identify each speaker turn and provide assistance to the researcher when listening to the audio recordings by allowing her to recognise who the different speakers are. Notes would also include any interesting interactions and/or discussions that were observed, to act as a flag, for the data analysis stage.

Collecting and recording non-verbal behaviour and details of the physical environment is important (Robson, 2002). So, at each meeting hand-written notes detailing gestures, postures, facial expression and details of the environment would be recorded using pen and paper, nothing down observations as they occurred. This is because non-verbal cues can become lost when information is preserved using only audio recordings (Robson, 2002).

Recording features, postures and facial expressions can also provide evidence for grounding and allow the characterised states and sub-states to be applied to monitor grounding evidences on a moment-by-

moment basis. As already described in the previous chapter by monitoring grounding evidence the evolution of mutual understanding can be monitored. Further, chapter 2 and the previous chapter has shown that grounding evidences do not just have to be verbal, evidences can also be non-verbal, supporting the need to record non-verbal interactions as well.

Seating plans would also be drawn, to establish whether there were any patterns amongst seating arrangements.

The next section looks at sending and receiving e-mail messages to the project mailing list.

4.2.2 Sending and receiving e-mail messages

The project's team leader set up a mailing list address, allowing everyone to send messages to the entire team using a single e-mail address. The researcher was added to the mailing list, after attending the first formal face-to-face consortium meeting. At this first meeting, everyone was informed that the researcher would be receiving copies of messages sent to the team as a result of her being included onto the mailing list. The researcher received a total of 181 e-mail messages.

The researcher being included on the mailing list was a reliable way of receiving copies of messages sent to the team. It also did not require the sender of the message to copy it to the researcher by using the Cc feature commonly found in most e-mail programs. It is important to note that the researcher did not respond to any messages received. She was just passively receiving the messages, but not acting on the message contents.

All e-mail messages that were received from the project team were stored in a separate folder in the researchers Microsoft Outlook Express 5 program. This was to allow all messages to be grouped together tidily in one place.

The next section examines the data which was collected through interviews.

4.2.3 Interview data

A short telephone interview, lasting approximately 20 minutes was individually conducted with team members to find out about their experiences of working in this project, and to help drive data analysis. By designing a short interview, the researcher felt that it would encourage all team members to participate, as a large amount of time would not be required from everyone's busy schedule. This interview took place at the end of the end of the project's first year.

In this structured telephone interview, team members were not asked any questions related to specific events, which the researcher witnessed during each of the face-to-face meetings. Instead, all team members were asked questions of a more general nature. This included questions related to their interactions, communications and collaboration with the project team. Also, receiving feedback on their general team experience. Questions of a more general nature were appropriate to this interview as it took place at the end of the project's first year, and not individually after each meeting. As a result team members may not have remembered specific events from each meeting. Appendix *B* has a copy of all the questions that were asked during this interview.

The design of this interview supports the researcher in gathering subjective opinions regarding the team's interactions in that 1-year period. To gather team members subjective opinions, mainly open questions were asked. For example, can you think of an example of where communication and collaboration has been particularly successful in this project? Some questions based on rating scale were asked as well. For example, on a scale of 1-5 (1 being not very effective and 5 being very effective) how useful were the four formal face-to-face consortium meetings? (18th-19th Jan 2001; 14th-15th Mar 2002; 6th-7th Jun 2002 and 12th-13th Sep 2002). The purpose of asking rating scale questions was to allow quantitative analysis to be performed.

To ensure that everyone in the team was being asked the same questions, a list of probing questions was developed by the researcher in advance of the interview. Probing question were also asked in order for the researcher to obtain more detailed answers. For the open question, can you think of an example of where communication and collaboration has been particularly successful in this project? the following three probing questions were designed.

- Was this witnessed during a formal face-to-face consortium meeting or was it sent as an e-mail message?
- What factors do you think led to this success?
- If the example given is face-to-face can you think of another example using e-mail and vice versa.

A pilot telephone interview was also performed by asking one person not associated with the project to participate in this exercise. The aims for conducting a pilot telephone interview were to identify the length of time required to perform the interview; assess the completeness and structure of the questions; check the clarity of each question; check that the questions could be answered in the manner the researcher expected and to test the equipment which was going to be used to audio record the interviews. Appendix *C* contains the list of questions which were asked during the pilot interview.

Only few minor stylistic changes were made to the questions asked in Appendix *B,* using the findings from questions asked in appendix *C*, the pilot interview. The researcher proposed changes to the pilot questions to ensure that team members would be able to understand each question that was being asked. Ensuring that questions were correctly answered by team members was particularly important as English was not the first language for all members of the team.

It was also important for the researcher not to give leading answers to the questions which team members were being asked, as this may have encouraged them to answer the question based on the examples and illustrations which the researcher had provided them with. However, examples were provided in some questions to give the team members a *'flavour'* of what they were being asked to think about when answering a particular question. For example, do you think that some messages are communicated better face-to-face than e-mail? For example, resolving conflict, making decisions etc. This ensured that team members provided answers that the researcher was expecting.

The researcher writing an e-mail message to team members using the mailing list address made a request for team members to participate in the telephone interview. In that message, the researcher also informed the team of the time period that was available to conduct all interviews, allowing responses to be gathered

within a set period of time. Using e-mail suitable times were negotiated with team members to conduct the interviews. Telephone interviews were conducted on a one-to-one basis in order to gather everyone's honest opinions and to allow them to *'open'* up to the researcher as answers were not being provided in anyone else's presence, only the researchers. If interviews were scheduled with team members from the same partner organisation present all together, this may have affected the honesty of some of the answers which were provided. Further, additional challenges may have been encountered trying to set up an interview with members of the same partner organisation. Setting up individual interviews can be challenging, and group interviews can amplify those challenges, as more team members may require extra negotiations and compromises when selecting the date and time for those interviews to be conducted.

To preserve the quality of responses that were received for each question in the interview, a request to audiotape the interview was made in the original e-mail message that was sent to the team requesting for team members to participate in the interview. At the start of each interview, the researcher asked for permission to record the interview. This was because for some interviews there was a large space of time in between negotiating a date and time for the interview to take place and when it was actually conducted. No objections were received from team members to record the interview. Team members were also reassured that all answers would be treated in strictest confidence, therefore all answers should be provided with honesty. Gillham (2000) says that recording interviews are important, as taking verbatim notes can stall the interview, and writing up notes after the interview has taken place can miss key elements.

Conducting a telephone interview is beneficial when the people you want to interview are widely dispersed (for example, Gillham, 2000; Robson, 2002). However, when arranging telephone interviews, accessibility can become a problem. For example, people are often busy at work and do not want to be bothered at home. Yet Robson reports that telephone based surveys do reduce time and resources in not running face-to-face interviews, by cutting out travel requirements. In addition, telephone based surveys also often result in lower costs in terms of time, effort and money as well. Gillham, also says that telephone interviews are popular because they offer some of the virtues found in face-to-face interviews. Like Robson, Gillham also mentions that telephone interviews save time and money, and do not require individual meetings to be set up. Time, money, travel and setting up meetings are some of the factors that highlight why telephone interviews are generally preferred, compared to an interview which has to be conducted face-to-face.

The next section examines the data which was collected through questionnaires.

4.2.4 Questionnaire data

To identify the multidisciplinary nature of this project team and the experiences of team members relevant to this project, a short questionnaire with eight questions was designed. Questions ranged from levels of education, disciplinary background, perceived level of expertise on skills relevant to the project, courses attended and relevant training received.

To gain feedback on potential ambiguities and suggestions for further improvements a pilot study was conducted with three persons not associated with the project. A copy of the final questionnaire can be found in appendix *D*.

Looking at university websites to see how their courses were structured and looking at application forms aimed at graduates identified eight disciplines. Each team member was also given the opportunity to include their own discipline if they felt that theirs did not fit in with any that was listed in table 4.5. Disciplinary backgrounds were characterised for education levels for degree and diploma levels and above. This is because for most team members this would be the highest level of education obtained. The choice of degree and diploma may also suggest where team members interests lie. In contrast, educational qualifications lower than a degree or diploma may not necessarily show the team members interests. However, it has been acknowledged that some team members may hold higher levels of qualifications, at postgraduate level as well.

A question was also designed asking team members what discipline(s) they were contributing in this project. This question was important as the researcher had already acknowledged that team members may have studied subjects different to the area that they are currently involved in and/or working in. The eight disciplines and associated subjects are:

Arts (e.g. Journalism, Music, Art…)
Business and Management (e.g. Actuarial Science, Business Studies, Banking…)
Computing (e.g. Computer Science, Software Engineering, Information Systems…)
Engineering (e.g. Aeronautical, Air Transport, Civil, Electrical and Electronic…)
Social Sciences (e.g. Economics, Psychology, Sociology, Economics…)
Science (e.g. Biological Sciences, Chemistry, Physics, Mathematics…)
Health Sciences (e.g. Nursing, Medicine, Midwifery, Dentistry, Pharmacy…)
Law
If other please state.

Table 4.5: Characterisation of eight disciplines to establish the multidisciplinary nature of the case study project team

Twenty-six questionnaires were sent as an attachment to the e-mail message. Bryman (2004) says that embedded questionnaires are easier for respondents to return and requires less computer expertise. However, attached questionnaires can cause problems when the recipient's operating systems or software presents problems with reading attachments, or when respondents refuse to open attachments due to risks of viruses spreading. Although Bryman had a preference for embedded questionnaires, in this investigation, attachments were used. As team members in this investigation were going to use and did use e-mail in between formal face-to-face consortium meetings it was assumed that all members of this team were both computer and e-mail literate. Also, any team members worried about viruses spreading could run a software program to check that there were no viruses before opening any attachment.

As English was not the first language of all team members, each question was produced as simply as possible. It had also been acknowledged that some members might experience difficulties answering certain questions, and that questions that they did not feel comfortable with may be left unanswered. Team members were free to make contact with the researcher for clarification purposes as well at any time to complete questions in the questionnaire.

In the main body of the e-mail message team members were also informed that answers to the questions in the questionnaire could be given by telephone as well if preferred, rather than having to write down the

answers themselves. This choice was offered as English was not the first language for everyone in the team. The researcher also made a request to record any answers given by telephone, in order to preserve the quality of the answers provided, and to allow the researcher to refer back to the answers at a later time if required.

In addition, this time to request team members to complete the questionnaire, the mailing list address was not used. In section 4.2.1.3, the mailing list address was used to ask team members to participate in the telephone interview. This time the researcher anticipated a higher response rate if individual messages were sent to team members and not to the mailing list. The questionnaire response rates are presented in the next chapter.

The next section looks at other relevant documentation.

4.2.5 Other documentation

The contract for the European research project which included the summary, objectives, participant list, contributions, innovations and the work plan was provided as relevant background material to the researcher by one of the members in the project. This information was provided in order to familiarise the researcher with the project and what it was trying to achieve.

The next section looks at how the data will be analysed.

4.3 Data analysis

To monitor the evolution of mutual understanding in this case study, the states and sub-states, which were characterised in the previous chapter to monitor evidence of grounding were applied to transcripts of the face-to-face meetings and to e-mail messages sent to the project mailing list. The unit of analysis was at individual team member level. Thus the focus was on the contributions that each team member made. Evidence of the four categories or aspects by which group members updated their mutual understanding devised by Mulder (2000) was also identified in the data. Transcript data and e-mail messages were also looking for potential evidence of the five types of problems experienced in dispersed teams (Cramton, 1997; 2001; 2002). This section reports how the analysis will be completed and reported.

The next section looks at analysing observational data.

4.3.1 Observational data

This section shows how data that was collected by observation was analysed. As a reminder observational data here refers to data collected by the researcher from attending the formal face-to-face consortium meetings by audio recording the meeting and noting down any interactions and evidence of non-verbal gestures which were observed. Before any analysis could be performed, the first step was to produce transcripts of each of the mini-disc tapes that recorded the meeting interactions.

No formal coding conventions (for example, Symon and Cassell, 1998; Hutchby and Woofitt, 2001) were applied to the transcripts. This is because the analysis reported in the next chapter did not require such detailed coding. However, the researcher did develop simple coding conventions to identify whispering

which took place amongst team members, short and long pauses, when team members spoke using their first language, interruptions and false starts.

Further, any interactions involving use of the team member's first language was not translated into English, as the researcher had no knowledge of the European languages spoken by members of the team. In this situation, in the transcript, it simply highlighted that a conversational exchange took place between the observed team members in their first language and not in English.

The transcripts for the first meeting were produced in full. However, this was very time-consuming. The following authors (Blaxter et al, 1996; Bryman, 2004; Gillham, 2000) all support the argument that producing transcripts is time consuming. As everything from the transcript was not used for analysis, transcripts for meetings two, three and four were not produced in the same way, that is by transcribing everything that was heard on the tapes. To the researcher there was no problem caused with not transcribing everything that was heard from the mini-disc tapes, as the original recordings could be referred back to at any time if any further information was required.

Listening to each tape twice produced transcripts for meetings two, three and four. Once in full, and a second time to extract relevant themes (discourse chunks) and all the interactions for the themes which had been identified. Any non-verbal interactions which the researcher had observed, were also added to the transcript. As not all of the non-verbal interactions were collected, the main analysis was performed looking at the verbal interactions between team members. As a result no comparisons were made between the verbal and non-verbal interactions. However, the researcher did attempt to record as many non-verbal interactions as possible. In addition, the quality of all the verbal interactions were not consistent across all the mini-disc tape recordings. Broken sentences, mumbled words and inarticulate noises were some of the common features identified. When any of the mentioned features were noticed in the transcript, a note was made. The quality of observing non-verbal interactions was also dependent on the researchers seating position. The researcher further acknowledged that some non-verbal interactions may have taken place, but missed by the researcher when taking the hand-written notes on paper. The hand-written notes included noting down timings, gestures, postures, facial expressions, details of the meeting environment and who was speaking.

The next section examines the identification of discourse chunks in the data.

4.3.1.1 Identifying discourse chunks

According to Horsey (2001), sentences combined to form larger sketches of language are known as *'discourse'*. Discourse is viewed as verbal exchanges in a social and cultural context. Examples of discourse given by Horsey include conversations; stories; jokes and letters. In this investigation discourse chunk was the name given to the labeling of themes observed from the transcripts of each of the formal face-to-face meetings. The term *'discourse'* was used to focus on a theme, and the term *'chunk'* was used to provide an indication for the quantity of discourse that was referred to.

Identifying discourse chunks produced transcripts two, three and four. Identifying discourse chunks in the data was important to label, separate and organise the data. Each discourse chunk was also classified according to a short, medium or long-term timescale. Short term referred to those areas that had no

significance after the event had taken place (for example, dining plans for a particular evening). Medium term referred to those areas that had no significance after 3-months (for example, selecting a date to hold the next meeting). Long term referred to those areas that still had significance after 3-months (for example, all activities which are directly related to the project). The 3-monthly period was selected because the formal face-to-face consortium meetings took place once every 3-months, therefore applying the same duration to characterise the different time periods. It was also anticipated that each meeting might not identify the same discourse chunks. This is because what is often discussed during a meeting, is characterised by an agenda. As a result, each meeting may have some incomparable agenda items, in relation to a previous meeting. However, some overlap of discourse chunks is likely, as certain discussions will take place in more than one meeting, for example, review on progress since the last meeting.

Bryman (2004) reports that qualitative data often results in a large amount of unstructured textual material, which can be difficult to analyse. As a consequence, one of the main aims for identifying chunks was to provide a clear identification of within what context detailed coding to monitor the evolution of mutual understanding by applying the characterised states and sub-states to monitor evidence of grounding could take place. As no coding scheme or framework was used to record the observational data, a large amount of unstructured data was gathered for this investigation.

Also, the identification of discourse chunks would allow the researcher to examine in detail the type of meetings which take place. By identifying the discourse chunks the researcher would be able to examine in detail the role that discourse chunk plays in the meeting. Further, this analysis can be reported using Tuckman's (1965) easy to follow model of group development, which is widely discussed in literature (for example, Bowditch and Buono, 2001; Stewart et al. 1999; Carmel 1999; Robbins and Finley, 2000; Boddy, 2002). Some interesting behaviours are expected in the next chapter as the analysis is based on four formal face-to-face consortium meetings. Tuckman's model of group development is relevant to this investigation as it allows the analysis to be presented in terms of that model and to show how the model may differ or remain the same across the different face-to-face meetings as more efforts are expended on the project that the European research project team is working on and by modelling the dynamics of team interactions. By combining the analysis for each of the face-to-face meetings together may produce some interesting overall findings in the empirical data collected from attending the face-to-face meetings as a silent observer.

Identification of discourse chunks can also allow the researcher to look more closely at the qualitative differences in the types of understanding at the formal face-to-face consortium meetings. As mentioned already, identifying discourse chunks allow the researcher to examine the data in context. Therefore, differences are expected across different discourse chunks, particularly when examined in relation to their short term, medium term or long term significance. That is achieving mutual understanding of a complex design problem (long term significance) is different to deciding where to go for dinner (short term significance).

The next section looks at applying the characterised states and sub-states from the previous chapter to discourse chunks.

4.3.1.1.1 Applying states and sub-states to discourse chunks

To apply the states and sub-states, which were characterised in the previous chapter to monitor evidence of grounding, discourse chunks first have to be identified to set the context in which the grounding evidence is being monitored. According to Denzin and Lincoln (2000) based on Silverman's (1998) work, you should not try and make sense of a single line of transcript or utterance in isolation. This work supports why it is necessary for discourse chunks to be identified, setting the context in which the states and sub-states were being identified. Second the discourse chunks needs to be classified according to a short, medium or long-term timescale.

As already brought to attention in the previous chapter, grounding is not a monolithic process, it is interactive and necessary to ensure effective communication (Mäkitalo et al. 2001). Grounding therefore has an important role in the context of mutual understanding and according to the re-definition for mutual understanding in section 3.2.1 of the previous chapter. Seeking grounding evidence in the empirical data is also important, especially as individual members of the team have not been asked to confirm when any understanding has been achieved during their interaction. For this reason, seeking and monitoring grounding evidence was paramount. The hearer's and reader's recognition also provides evidence of understanding. This was also discussed in the previous chapter.

To apply the states and sub-states, characterised in the previous chapter, grounding evidence first has to be identified. According to Makiltao et al. (2002) feedback is the first evidence telling something about the respondent's reaction and understanding. Grounding was also examined in chapter 2. Clark and Brennan (1991) already showed in that chapter that in conversation people monitor what their partners are doing moment-by-moment and what they are attending too. According to the re-definition for grounding in the previous chapter, grounding is an interactive process by which common ground and mutual beliefs are established on a moment-by-moment basis.

Examining the literature in chapter 2 has revealed that there are significant differences amongst how authors classify different types of grounding evidence. Main differences in literature were associated with the distinction amongst what types of evidences can be used to show evidence of characterised states and sub-states 1, 2 and 3, discussed in the previous chapter, agreement, disagreement and holding a neutral position. This is because most of the examples which are found, do not have the different contexts identified.

Verbal utterances were the main unit on which analysis was performed in this investigation as audio recordings could only capture verbal utterances. Everyone's non-verbal interactions were not collected, as video recording of the interactions were not made. However, when any non-verbal interactions was observed this was included onto the transcripts and used for the analysis.

Chapter 2 has also shown that grounding evidence is not just restricted to verbal evidence; evidence can also be non-verbal as well (for example, Clark and Brennan, 1991). Positively shaking your head in agreement with something that has been said can also be used to provide evidence of understanding and agreement. Most of the examples reported in literature however show evidence of understanding and agreements, concentrating on verbal acts, using mainly transcript data. This results in a lack of detailed

insight into exactly what evidence can be used to provide evidence of agreement when communicating non-verbally.

Now summarised are the evidences which can be sought for agreement, state 1 and sub-state 1.1. Chapter 2, section 2.2.2.1. shows that there are a number of ways in which evidences for agreement can be sought. Seeking evidence for agreements is covered in detail in literature and there are a number of examples provided. This played an important contribution to analysing the empirical data for this investigation, by providing insight into types of evidences which can be used to deduce agreement.

The researcher synthesised together all the different forms of evidences for agreement, which were reported for back channel responses, acknowledgements, acceptances, commitments and agreements. In addition, non-verbal evidences were added to the synthesis which was produced. No distinctions were made on individual types (for example, an acknowledgement, an acceptance, and a commitment), instead all the different evidences were used in the manner of agreement.

However, there still appears to be a lack of taxonomy reporting all the ways in which evidences for agreement can be sought. The contributions by Jurafsky et al. (1998) on agreements are very relevant as it showed the different ways in which evidence for agreements can be sought, but was limited only to providing evidences for verbal evidences. Therefore, when seeking evidences of state 1 and sub-state 1.1 in the empirical data, the researcher was looking for the types of evidences tabulated by Jurafsky and colleagues. However, it is also acknowledged that other terms may appear in the data, because of factors such as different speaking styles and because Jufrasky and colleagues did not consider non-verbal interactions. Therefore attention should not just be paid to what Jufrasky and colleagues report, but to also look at other types of evidences which appear in the empirical data.

As chapter 2 reported, when no evidence is provided, the speaker simply assumes that the listener accepted what was said (Jackson et al. 2000; Novick et al. 1996; Carberry and Lambert, 1999). Therefore, when no explicit evidence is provided, it is implicitly assumed that there was agreement. Evidence of this will also be sought for in the empirical data collected for this investigation.

Now examined are the evidences which can be used to seek evidence of disagreement, state 2 and sub-state 2.1. Evidence of disagreement was covered in chapter 2, in section 2.2.2.2. However, this chapter shows that displaying evidences for disagreement is not covered in the same level of detail as that found for agreement. Further, evidences for disagreement is not just limited to verbal interactions, but also include non-verbal evidences as well. For example, negatively shaking your head can be used as an indicator to provide evidence that you do not agree to something, which has just been said.

Reviewing what types of evidences are reported in literature, identifies what the researcher should look out for when seeking evidence of disagreements in the empirical data. However, it is important to bear in mind, that the researcher should not just focus attention on what is reported in literature, as currently there is no taxonomy which provides evidence of all the different types of disagreements that can exist during an interaction. As already mentioned stylistic differences in speaking may result in a variation on the types of evidences which are found in the researcher's data, so the empirical data should not just cover what is reported in existing literature.

The contributions by Pomerantz (1996) were also very relevant as this literature brought to attention the need to pay close attention to conjoined utterances, using conjunctions such as *'but'*, *'except'* and *'however'* all providing evidences of disagreement. It was important to seek evidence of disagreement, as the researcher did not ask team members to confirm when understanding was not reached, or when there was evidence of disagreement(s).

It was also a shame that Jurafsky et al. (1998) did not examine disagreements as part of their four dialog acts or in addition to their four dialog acts. Their work which looked at agreements was very relevant.

Now examined are the evidences which can be used to identify evidence of neutral position, state 3 and sub-state 3.1. In chapter 2, no examples were found on grounding looking at holding a neutral position. However, examples on holding a neutral position were found in negotiation literature (Hindle, 1998) so this work was relevant.

The researcher also used her knowledge and experience of terms that can be used to suggest that the listener holds a neutral position by displaying evidence of such as *'I do not care'*, *'I do not mind'* and *'whatever'*. *'Me too'* and *'exactly'* can also be used when someone has already said something, and the same viewpoint is held by another person as well.

Now examined are evidences of no agreement, state 4 and sub-state 4.1. Unfortunately literature did not show evidences of no overall agreement being reached. It is important to bring to attention at this point that no agreement is distinct from disagreement. To characterise interactions within a discourse chunk as evidence of state 4, and sub-state 4.1, it requires close examination of the interaction, paying close attention to states 1-3 (agreement, disagreement and holding a neutral position) and the sub-states which have been characterised for each of these three states. State 4 is most likely to be found in activities such as making a decision or making a suggestion.

It is important to clarify that the entire discourse chunk does not need to display evidence of state 4. As a result, evidence of state 4 or sub-state 4.1 may only be a few lines, a slightly larger portion of text from the transcript, or in some cases the whole discourse chunk. Bazerman and Neale (1983) when talking about negotiation report that communicating parties can fail to agree and as a result failure to reach an agreement. Although Bazerman and Neales raise an interesting point, no examples were provided to show how no agreement could be recognised .

Now examined are evidence for no growth in mutual understanding, state 5. To apply evidence of state 5 or sub-state 5.1 to the data requires examining *'same'* discourse chunks or discourse chunks which look at activities that have already been discussed at a previous meeting, but has been coded with a different discourse chunk name. In this context, same discourse chunk refers to identical discourse chunk names that are found at different meetings, highlighting that those interactions are being followed up. Discourse chunks can also be labeled differently as already mentioned here, therefore focus should not just be on the naming of the discourse chunk, but also for close attention to be paid to the interactions included within the identified chunks. Thus familiarity with the set of data that has been collected is required to apply state 5 or sub-state 5.1. This state looks to see how previously established discourse chunks appears over

time, monitoring the evolution of mutual understanding in an interaction. More specifically this state was concerned with identifying evidence of situations in discourse chunks which resulted in common ground and mutual beliefs between team members no growing, but remaining the same. This state can be observed looking at data from the same day in the same discourse chunk as interactions may return back to a particular area after focussing on another, or in separate discourse chunks from the same day or from discourse chunks from over a period of time.

Overall, when reporting the results on the identification and application of states and sub-states to the data it is important to bear the following two points in mind. First, when verbal and non-verbal evidences are provided by the same person (for example, a positive head nod and *'yes'*; this is counted as two separate forms of evidences for agreement. Second, for states 4 and 5 and sub-states 4.1 and 5.1, as grounding evidences are not individually identified in the discourse chunk, when evidence for either of the two states or sub-states is found, it simply refers to the number of situations in which it has been observed.

The next section look at written data, e-mail messages.

4.3.2 Written data (E-mail messages)

To analyse e-mail messages did not require the researcher to translate information into a usable form, unlike the audio recordings of the face-to-face meetings which first required transcripts to be produced.

The next section looks at identifying textual chunks.

4.3.2.1 Identifying textual chunks

Focusing on high-level intentions of the writer goals identified textual chunks in e-mail messages. More than one chunk could be identified from a single message, because as Murakoshi and Ochimizu (1998) reports, a single message can contain many topics. The subject field of an e-mail message was not used to determine textual chunks for three reasons. One, the subject field may be left blank, two, the subject field that is used may not cover everything included in the message, and three, because out of date subject fields can be used by the sender of an e-mail message. Like discourse chunks, textual chunks are also categorised according to short, medium and long-term timescales.

The next section looks at applying the characterised states to monitor evidence of grounding in e-mail messages.

4.3.2.1.1 Applying states to textual chunks

To apply the characterised states to monitor grounding evidence in e-mail messages did not require grounding evidence's to be identified utterance by utterance as the previous chapter already discussed. Table 4.6 summarises how the characterised states were applied to the textual chunks in the e-mail messages. To be able to define a state to the textual chunk requires the researcher to examine the contents in the main body of the e-mail message.

State	Application
State 1: A message is sent to the entire group, following a face-to-face discussion	The e-mail message in this state would refer to the first e-mail which has been sent on a particular textual chunk. This message would relate to what has already been discussed during the face-to-face meeting. To determine

	that what was included in the message was discussed during the face-to-face meeting, the researcher would look at the discourse chunk headings and if necessary look at the interactions in that chunk.
State 2: A discussion thread emerges from the original message, which was discussed during the face-to-face discussion	A discussion thread would form every time a message from the same discourse chunk is added to original message which was sent in state 1.
State 3: No discussion thread emerges from the original message, which was discussed during the face-to-face discussion	A discussion thread does not form, therefore there is only the original message that was sent in state 1.
State 4: A message is sent to the entire group, but not following discussions which took place when together at the face-to-face meeting	The e-mail message in this state would refer to the first e-mail which has been sent on a particular textual chunk. This message would relate to something that has not already been discussed during the face-to-face meeting. To determine that what was included in the message was not discussed during the face-to-face meeting, the researcher would look at the discourse chunk headings and if necessary look at the interactions in that chunk.
State 5: A discussion thread emerges from the original message, but was not following discussions which took place when the team was together at the face-to-face meeting	A discussion thread would form every time a message from the same discourse chunk is added to original message which was sent in state 4.
State 6: No discussion thread emerges from the original message, which was not following discussions which took place when the team was together at the face-to-face meeting	A discussion thread does not form, therefore there is only the original message that was sent in state 4.
State 7: No growth in mutual understanding. In this state actions discussed face-to-face are not followed up by e-mail	No messages are sent on actions that were decided to be followed up when everyone was together at the face-to-face meeting. To identify this state the researcher would examine the list of actions which would be followed up by e-mail. If e-mail messages are not sent in relation to that action, the researcher simply writes down the name of the action and classifies it as no growth in mutual understanding. In this state no additional common ground and mutual beliefs are established.

Table 4.6: Applying states for e-mail interactions

The next section looks at applying categories or aspects by which group members update their mutual understanding. This section covers both transcript data and e-mail data together.

4.3.3 Applying categories or aspects by which group members update their mutual understanding

As identified in chapter 2, Mulder (2000) developed an interesting coding scheme, designed to capture aspects by which group members update their mutual understanding when working in a technology mediated group interaction. The four categories or aspects are:

- *Task/domain*: involves the task and the project description,
- *Social interaction*: does not involve the task, but more personal and cultural utterances,
- *Process*: planning of a next meeting, and structuring the current meeting, and
- *Technology*: utterances related to technology use or media choice.

Mulder's (2000) work is relevant to this investigation as the categories or aspects allow you to look at the different types of interactions that are occurring, and can produce interesting analyses, particularly as this investigation is concerned with empirical data collected over a 1-year period. However, Mulder only applied the categories to transcripts of video-meetings. The researcher in this investigation is also using the categories or aspects to look at how they appear in e-mail messages, with the view to compare the types of interactions which take place face-to-face and through e-mail. Task, social, process and

technology related interactions are used to acquire more insight into the nature of interaction. That is why the researcher was seeking evidence of them in the empirical data collected for this investigation. Mulder also interestingly reported that in case team members focus on only one kind of interaction, it is referred to as an unbalanced interaction.

Table 4.7 displays Mulder's specific coding. The researcher was using this coding scheme (Mulder, 2000) to judge the categories or aspects in the discourse and textual chunks.

Content of the expression		**Meta communication**	
Task/domain	**Social interaction**	**Process**	**Technology**
Project description	Personal traits	Planning next meeting	Technology use
Goals	Role in project/team	Structure current meeting	Communication tool breakdown
Design principles	Expectations of project/team	Other	Other
Material use	Background		
Steps	Other		
Context			
Other			

Table 4.7: Specific coding for task/domain, social interaction, process and technology

Table 4.8 shows an illustration of how the researcher found evidence of Mulder's categories or aspects in discourse chunk *Project logo*, from the 18/12/01 meeting transcript.

Project logo — Discourse chunk

Jack: First point here, this logo for the project we have a designer in our team
[Desmond nods his head]
[Laughter]
Fabian: [laughs] It is not true.
Jack: Please correct me, but this Braille for the project
Hazel: You cannot see it.
Lucy: You cannot see it.
Jack: Do you know Braille? No?
Morris: it should have three dots in a column
Charlotte: Yes. That is right.
Morris: and one
Charlotte: Yes it is right.
Morris: I can write it for you
Charlotte: yes, I can read Braille.
Morris: Writes the project name in his Braille machine
Jack: ah, yes
Morris: 1st letter is 4 dots
Jack: yes.
Morris: 2nd letter is 2 dots
Jack: 3rd letter is 2 dots
Morris: 4th letter is 3 dots, 5th letter is 3 dots, 6th letter is 1 dot.
Jack: yes.

Not being able to see the project logo, which was being displayed, shows potential evidence of Mulder's category or aspect ***'Social Interaction'***. The researcher assumes that it is the *expectation of team members* to be able to see what is being shown to them. Hazel and Lucy in this interaction inform Jack that they cannot see the logo.

Discussion of the project logo shows potential evidence of Mulder's category or aspect ***'Task/Domain'***. The researcher assumes that this would be type *'other'* as the logo is required for the project.

Using a Braille machine to show the appearance of the logo in Braille shows potential evidence of Mulder's category or aspect ***'Technology'***. The researcher assumes that interacting with technology can be interpreted as *'using technology'*.

Overall, this interaction displays potential evidence of ***'Social Interaction'***, ***'Task/Domain'*** and ***'Technology'***.

Table 4.8: Identifying potential evidence of Mulder's categories or aspects in discourse chunk Project Logo

The next section looks at searching for potential evidence of five types of problems experienced by dispersed teams (Cramton, 1997; 2001; 2002) in the discourse and textual chunks.

4.3.4 Searching for evidence of five types of problems experienced by dispersed teams

Discourse chunks in the transcripts and textual chunks in the e-mail messages will be analysed to see if potential evidence of Cramton's problems (1997; 2001; 2002) are found in the empirical data collected for this investigation. Cramton identified five types of mutual knowledge problems, which were identified from a study of thirteen geographically dispersed teams, consisting of students located at nine universities on three continents. Table 4.9 presents the five problems.

1. Failure to communicate contextual information By definition, members of a dispersed team work from different locations. Sometimes they also are members of different organisations. Accordingly, there may be important differences in the contexts in which they operate. However, it proved to be difficult for team members to gather and retain information about the context in which their distant partners worked. Team members often failed to communicate important information about their own context and constraints to their remote partners. The teams involved in the project, including the dispersed faculty team, sometimes failed to recognise differences across sites in deadlines for deliverables, evaluation criteria, and the timing of spring breaks.
2. Difficulty in communicating the salience of information Teams encountered problems that hinged on difficulty in communicating the salience of information. Writers often assumed that what was salient to them would be salient to their readers. Tone of voice, facial expressions and body language add meaning to communication. Electronic communication proved to require skills for directing attention that many team members did not have. For example, when e-mail messages addressed several topics, partners sometimes differed in which they found most salient.
3. Unevenly distributed information Unevenly distributed information interferes with team-level collaboration and can cause problems in relationships. Two causes were errors in e-mail addresses and failure to send copies of mail to all members. Different perspectives exist between members because of the differences in the information that they have received. Problems stemming from unevenly distributed information was not limited to cases involving error in addressees and undelivered mail. Sometimes people knew they were exchanging mail with only a part of the team, but failed to understand how that affected the perspectives of team members who did not receive the mail, or how it affected the dynamics of the team as a whole.
4. Differences in speed of access to information Differences among team members in their speed of access to information. Some members have 24 hour access to e-mail, while others do not. If some members see e-mail only once a day, this limits the amount of interaction that is possible, and slows the pace of the team. A variation of this issue is concerned relative differences in the speed of electronic transmissions among parts of the team.
5. Difficulty in interpreting the meaning of silence One of the biggest challenges team members faced was interpreting the meaning of their partner's silence. Silence due to technical problems or faulty information sometimes was often misunderstood as intentional non-participation.

Table 4.9: Cramton's (2001) Five problems in dispersed collaboration

To find evidence of Cramton's (1997; 2001; 2002) problems required the researcher to become familiarised with the different contexts in which Cramton reported those problems. To identify potential evidence of the five problems, the researcher requires not only spoken and written evidences from the speaker and the writer, but also an awareness of interactions which may have been expected, following a previous interaction. This is particularly true for the fifth problem, difficulty in interpreting the meaning of silence.

Unlike Mulder (2000), Cramton (1997; 2001; 2002) did not include a specific coding scheme which shows how the five problems could be identified. Cramton had only reported evidence of those five problems, but each was covered in detail, and explanations on its surrounding contexts were provided.

The researcher has anticipated that each discourse or textual chunk may identify one or more potential problem(s). As already described when looking for potential evidences of Mulder's categories or aspects, it was the entire discourse or textual chunk which was being analysed, and not single utterances from that interaction.

Table 4.10 shows an illustration of how the researcher found potential evidence of Cramton's problem, difficulty in communicating the salience of information, in discourse chunk *Project logo*, from the 18/12/01 meeting transcript.

Project logo — Discourse chunk

Jack: First point here, this logo for the project we have a designer in our team
[Desmond nods his head]
[Laughter]
Fabian. [laughs] It is not true.
Jack: Please correct me, but this Braille for the project
Hazel: You cannot see it
Lucy: You cannot see it.
Jack: Do you know Braille? No?
Morris: it should have three dots in a column
Charlotte: Yes. That is right.
Morris: and one
Charlotte: Yes it is right.
Morris: I can write it for you
Charlotte: yes, I can read Braille.
Morris: Writes the project name in his Braille machine
Jack: ah, yes.
Morris: 1st letter is 4 dots
Jack: yes.
Morris: 2nd letter is 2 dots
Jack: 3rd letter is 2 dots
Morris: 4th letter is 3 dots, 5th letter is 3 dots, 6th letter is 1 dot.
Jack: yes.

Potential evidence of the problem, ***difficulty in communicating the salience of information***, when Hazel and Charlotte inform Jack that they cannot see the logo, which is being shown to the team. There was higher salience for Jack who was showing the logo to the team, than to who it was being shown too.

Table 4.10: Identifying potential evidence of Cramton's problem, difficulty in communicating the salience of information in discourse chunk Project logo

Identifying Cramton's (1997; 2001; 2002) problems in this investigation will show how the problems appear over time, and the different contexts in which they have been identified. It was relevant for the researcher to identify potential evidence of those problems in the empirical data collected, particularly to see how those problems appear over time as data was collected for 1-year. Guidelines proposed in chapter 8 will look at how any problems identified in the investigation could be alleviated.

The next section examines inter rater reliability.

4.4 Inter rater reliability

To assess inter-rater reliability between the researcher and another person identifying potential grounding evidences, applying the characterised states and sub-states from the previous chapter to the identified grounding evidences, seeking potential evidence of Mulder's (2000) four categories or aspects and potential evidence of Cramton's (2001) five problems, four separate exercises were performed.

The first exercise looks at identifying grounding evidence and applying the relevant state or sub-state to that grounding evidence.

4.4.1 Identifying grounding evidence and applying the characterised states and sub-states using transcript data

This exercise requires one independent rater who has no knowledge of the project and does not have to be from a psycholinguistics background. The researcher wanted the rater to have no knowledge of this project so that they can look at the data from an outsider's perspective. Also, no knowledge of psycholinguistics was necessary, as the researcher would provide examples highlighting how grounding evidences can be identified. Instructions on how to select the most relevant state or sub-states to the grounding evidences will also be provided, alongside an example. As this exercise will take place face-to-face, the researcher will go through all of the material with the rater, paying particular attention to the examples, and ensuring that the rater is familiar with the task. The rater can ask the researcher questions at any time or seek clarifications.

This rater will be asked to check for consistency and reliability of identifying grounding evidence in the data, applying the states and sub-states to the identified grounding evidence and establishing if there was evidence of sub-states 4.1 (no agreement) and 5.1 (no growth in mutual understanding) in the discourse chunks. A random sample of interactions for five dialogue chunks will be provided to the rater. The researcher selected not to identify the grounding evidence(s) in the interaction. Instead the rater was asked to first identify the grounding evidence(s) and then to apply the relevant characterised state or sub-state to the grounding evidence(s). Allowing the rater to first identify the grounding evidence, allows the researcher to compare the grounding evidences identified by both.

The next section looks at applying the characterised states to discourse chunks from e-mail messages.

4.4.2 Applying characterised states using e-mail messages

The researcher decided not to ask the independent rater who was going to validate a sample of data to identify grounding evidence and apply the characterised states and sub-states to the grounding evidences to validate a sample of e-mail messages and to apply the characterised states to those e-mail messages. Although the researcher would have been able to have selected random textual chunks on which validation could be performed, the characterisation of states for monitoring grounding in e-mail messages had not been characterised in a way which would allow validation to take place, based on just the e-mail messages. This is because the states for e-mail message as described in the previous chapter, required the person applying the states to have knowledge of what was discussed during each of the face-to-face meetings. As the rater would not have had knowledge of what was discussed during the face-to-face meetings, no validation could be performed on the application of the characterised states to e-mail data collected for this investigation.

The next section looks at validating Mulder's (2000) categories or aspects.

4.4.3 Applying Mulder's categories or aspects

To contact Ingrid Mulder by e-mail to ask if she can identify and establish if her four categories or aspects (2000) were interpreted correctly by the researcher, by looking at a random sample of data, covering both discourse and textual chunks. If Mulder agrees to participate in the exercise she will be sent an attachment with the random discourse and textual chunks and asked to write down what categories or aspects are present in each of the chunks, and not looking at individual utterances in the interactions contained in the discourse chunk. Mulder has also been informed in the original message that had been sent to her that she could contact the researcher at any time by e-mail to ask questions or seek clarification.

The next section looks at the validation of Cramton's reported problems.

4.4.4 Seeking evidence for Cramton's reported problems

To contact Catherine Cramton by e-mail to ask if she can validate a sample of empirical data to check if her five problems have been interpreted correctly by the researcher. If Cramton agrees to participate in this exercise, extracts of potential problems identified by the researcher will be sent to her to gather her interpretation. The researcher will send potential problems using relevant interactions from both discourse and textual chunks. Cramton will also be informed that one extract may show more than one type of problem. Therefore she will be asked to look at the extracts and based on those extracts identify all of her potential problems that can be characterised by those extracts. For ease of reading, evidence of the potential problems will be presented in a table. Cramton has also been informed in the original message that had been sent to her that she could contact the researcher at any time by e-mail to ask questions or seek clarification.

The next section concludes this chapter.

4.5 Conclusion

In this chapter, the multidisciplinary European project team that was the case study for this investigation was explained in detail. Data collection methods which were used to collect empirical data were also covered. This included attending formal face-to-face consortium meetings as a silent observer, receiving e-mail messages, conducting telephone interviews and asking team members to complete a questionnaire. How to analyse the data from the face-to-face meetings and e-mail messages was also covered in detail. Inter-rater reliability was also discussed.

The next chapter presents the insights for the evolution of mutual understanding in a multidisciplinary team which communicates face-to-face and using e-mail.

Chapter 5

Monitoring evolution of mutual understanding

Chapter 5: Monitoring evolution of mutual understanding

This chapter presents the results of this investigation in two sections. The first section summarises the results of the data collection methodology described in chapter 4. The second section presents the evolution of mutual understanding, from the researchers perspective, based on the European research project team which was the case study, also described in chapter 4. The evolution of mutual understanding was observed by applying the re-definition for mutual understanding and the states and sub-states which were characterised in chapter 3.

5.1 Data collection results

This sub-section presents the results of the response rates for the data collection methods, which were discussed in chapter 4. The data collection methods consisted of obtaining informed consent, questionnaires and structured telephone interviews. In addition, the researcher also collected data by attending the face-to-face meetings as a silent observer and receiving e-mail messages sent to the project mailing list.

The response rates for the informed consent form is presented first.

5.1.1 Obtaining informed consent

A 100% response rate was received for the informed consent form that was described in chapter 4, section 4.2.1. All members of this project team cooperated with the researcher and read and signed the form. There were no objections to what was included in this form. A copy of this form can be found in appendix A. Since the consent form had been filled in, the researcher changed the title of the investigation. In addition, as all team members did not keep the researcher informed of what other interactions they had been involved with in, between the face-to-face meetings, and did not send copies of any text based communication, the analysis presented in this chapter is based on empirical data collected from the face-to-face meetings and e-mail messages sent to the project mailing list address. That is information which was shared to the group. The analysis does not look at interactions which took place outside of the project team, examining any other forms of medium used.

The informed consent form also did not state that a telephone interview would be conducted. Following a poor response rate to the questionnaire which was designed to find out about team members most recent experience of working in a multidisciplinary team, sent to team members using e-mail, questions from the questionnaire were re-structured so that they could be asked during the telephone interview. Conducting telephone interviews hoped to achieve a higher rate of response.

Response rates to the questionnaire, which was circulated to the team, to identify its multidisciplinary nature is presented next.

5.1.2 Questionnaire to identify the multidisciplinary nature of the project team

The questionnaire that was described in chapter 4, section 4.2.1.3, was designed to identify the multidisciplinary nature of the European research project team. 18 out of 26 questionnaires were completed and returned to the researcher (69%). According to Mangione (1995) in the context of

response rates for postal questionnaires, a response rate of 60-70% is acceptable. Eight team members did not return their completed questionnaire, and out of those eight, three team members had left the project team by the time this questionnaire was circulated, and five did not complete it and return it back by the time specified. Despite additional reminders sent to those five team members, completed questionnaires were not returned to the researcher. The 18 completed questionnaires confirmed that this team was multidisciplinary, presenting a wealth of skills and previous experience relevant to the goals of this project. Appendix F presents a summary of answers to the completed questionnaires. In the summaries practical knowledge referred to practical implementation experience that had been acquired and theoretical knowledge referred to knowledge that had not yet been developed or practiced, but only read about. Relevant information from team members who did not complete the questionnaire, but participated in the telephone interview was included in Appendix F as well.

The next section looks at the response rates for the telephone interview which were conducted individually with team members to find out their experiences of working in the European research project team.

5.1.3 Telephone interview to find out team member experiences of working in this project

The telephone interview, described in chapter 4, section 4.2.1.2, was designed to find out about team members experiences of working in this project team. 15 out of 26 telephone interviews were conducted following a message that was sent to the project team mailing list, requesting all team members to participate (58%). According to Mangione (2000), in the context of postal questionnaires response rates between 50% and 60% are barely acceptable and require additional information that contributes to confidence about the quality of the data. Acceptability rates for telephone interviews have not been found. However, as the telephone interviews were only conducted to gain a deeper insight regarding team members feelings and opinions, obtaining a response rate of 58% was acceptable to the researcher.

One message did not reach a team member due to a mail delivery failure. The researcher asked another team member from the same partner organisation to inform them that the researcher was trying to contact them to request participation in the telephone interview. However, no contact was made with the researcher. Another team member said that their attendance to the December and March meeting was because another person working on the project from their partner organisation was ill therefore did not feel it was appropriate to participate in this interview. However, the person who was ill participated in the interview, despite not having attended all of the meetings. Despite sending reminders to team members requesting their participation for this data collection, no additional telephone interviews took place as a result of sending out reminders to the team.

Three team members requested to receive a copy of the questions that were going to be asked in advance. The researcher sent the questions as an attachment. In addition, three persons (translators) not associated with this project conducted three of the 15 interviews (20%). This is because three team members made a request to complete the interview in their first languages (two in Spanish and one in Italian). However, the three translators provided the researcher with answers to the questions in English.

Not everyone who participated in this interview answered the questionnaire and vice versa, however there was some overlap where team members participated in both. The most plausible reason for differences between the response rates for the two can only be attributed to the timing of those two forms of gathering data. As discussed in chapter 4, the questionnaire to identify the disciplinary background of the project team was circulated between December 2003 and March 2004. The telephone interviews were conducted between October 2002 and March 2003. Although a deadline had been set, lack of responses resulted in this being pursued over a longer period of time.

The next section presents the results of monitoring the evolution of mutual understanding in this project team.

5.2 Results for monitoring the evolution of mutual understanding

This section presents the results summarising the evolution of mutual understanding using empirical data, collected for 1-year of a 27-month project, on developing technology to promote e-learning activities with blind and visually impaired persons. In 1-year there were four face-to-face meetings, and 181 e-mail messages sent using the project mailing list address. Transcripts from the face-to-face meetings and e-mail messages formed the core data which was used to monitor the evolution of mutual understanding in the multidisciplinary project team.

Results presented in this chapter, from the researcher perspective, monitor the progress that was made by this team, by examining two perspectives. First, the progress made during the face-to-face meetings and continuing with those areas of communication, after the meetings through e-mail. Second, the progress that was made in terms of coming closer towards the aims and objectives of the project, and the scheduled plan reported in chapter 4. Also presented in the results section is an overview of the method which evolved from the process to monitor mutual understanding and a look at the transitions between different states of mutual understanding and qualitative differences in the types of understanding which was reached.

In order to present more meaningful insights, the evolution of mutual understanding is characterised looking at the project's seven work packages which were mentioned in chapter 4. For each work package, discourse chunks relevant to it were identified. In addition to show the progress which was made towards that work package, relevant discussions which were continued through e-mail, were also used in the analysis, by selecting relevant textual chunks from the e-mail messages which were received. This pattern continued until relevant discourse and textual chunks were selected up to after the set of e-mail messages received after the 4th face-to-face meeting. Alongside each textual and discourse chunk was also noted the associated timescale for each chunk. It was necessary to look at time as this was examined in more detail in section 5.3.4. Within each textual and discourse chunks are themes related to each work package. The themes are required to monitor the evolution of mutual understanding.

In this chapter four other interesting analyses are also presented. Group development phases for each work package, looking at time for each work package, a summary of working in a multidisciplinary design team and having blind and visually impaired people in the team.

According to the re-definition for mutual understanding, presented in chapter 3, mutual understanding is *"The state at a particular moment in an interaction, where through the process of grounding, sufficient common ground and mutual beliefs are established for current purposes between team members. In grounding, recognising speaker/writer intentions is also important".*

Within each discourse chunk, grounding evidence was first identified, and following this identification, the characterised states and sub-states were applied to each discourse chunk to monitor the evolution of mutual understanding. However, to deduce whether the discourse chunk which was based on the speaker's high level communicative intentions, resulted in mutual understanding, it was important to look for evidence of increased common ground and mutual beliefs as mutual understanding could not only be characterised by identifying grounding evidence alone as discussed already in chapters 3 and 4. The states and sub-states which were applied to the grounding evidence characterise both growth and no growth in mutual understanding.

In the analysis reported in this chapter, the researcher assumes that there is increased mutual belief as a result of either the speaker or writer sharing their communicative intentions with the team. Team members belief states not altering assumes that mutual belief(s) are held in the team. In addition, if no further comments are received from the reader or writer on what was being discussed the researcher assumes that the speaker or the writer of a message assumes mutual belief(s) exist. Only spoken utterances would determine that a team members belief state has altered and that mutual belief(s) on a particular aspect of communication is not held.

According to the characterised states and sub-states for face-to-face interactions, growth in mutual understanding can be achieved when there is evidence of agreement, disagreement, holding a neutral position and reaching no eventual agreement. Characterising states to represent growth in mutual understanding for e-mail interactions signify that by sending an initial message to the team, and a discussion thread forming or not forming as a result of that message being sent characterises growth in mutual understanding. Growth in mutual understanding for e-mail interactions is also characterised for messages which are sent as a result of a face-to-face discussion and also as a result of a non face-to-face discussion too. Characterising the states signifies that common ground and mutual beliefs become larger as a result of sending a message to the team.

From the re-definition for mutual understanding, no growth is implied as the common ground and number of mutual beliefs between team members not growing. According to the characterised states and sub-states to monitor the evolution of mutual understanding in transcript data from face-to-face interactions, no growth only occurs when the set of common ground and mutual beliefs do not get larger, but remain the same. Spoken utterances are required to indicate no growth in mutual understanding in transcript based data. According to the characterised state for monitoring the evolution of mutual understanding in e-mail messages, no growth in mutual understanding only occurs when actions which are discussed face-to-face are not followed up by e-mail.

Also presented in this chapter are evidence of Mulder's (2000), four categories or aspects by which group members update their mutual understanding, when working in a technology mediated group interaction

and potential evidence of Cramton's five types of problems, which she observed in dispersed collaboration (Cramton, 1997; 2001; 2002). This is examined further in sections 5.4 and 5.5.

The next section examines the evolution of mutual understanding in the seven work packages for the European research project. In this chapter only one set of data is examined in detail, work package 1. This is because work package 1 was the first work package. The complete set of work packages is included in appendix W.

5.2.1 Work package 1: Usability requirements of accessibility and web authoring tools

Table 5.1 summarises themes related to work package 1 by identifying relevant textual and discourse chunks.

Discourse chunk From the 1st face-to-face meeting	**Timescale**
Overview of access technology and some of the issues and opportunities faced by visually impaired people using the Internet (17/12/01)	Long term
Demonstration of screen reader use (Jaws) by a blind person using the Internet (17/12/01)	Long term
Change to the agenda (17/12/01)	Short term
Overview of the market for access technology (17/12/01)	Long term
Discussion (17/12/01)	Long term
Short presentation by each of the partners on what work they have done in the last three months – partner 8 on work package 1 (18/12/01)	Long term
Short presentation by each of the partners on what work they have done in the last three months – partner 2 on work package 2 and 6 (18/12/01)	Long term
Short presentation by each of the partners on what work they have done in the last three months – partner 3 (18/12/01)	Long term
Short presentation by each of the partners on what work they have done in the last three months – partner 5 (18/12/01)	Long term
Developing a plan of future work (18/12/01)	Long term
Textual chunk After the 1st face-to-face meeting	
Detailed work plan for the next three months (Typed up plan discussed during the second day of the face-to-face meeting)	Medium term
Authoring tool accessibility guidelines	Long term
Report on problems encountered by visually impaired people on websites	Long term
E-learning	Long term
Protocol of evaluation for e-learning	Long term
Questionnaire on unmet learning needs	Long term
Dreamweaver	Long term
Discourse chunk From the 2nd face-to-face meeting	
Informing of late arrival (14/3/02)	Short term
Review of work package 1, Questionnaire data gathered (14/3/02)	Long term
Overview of the evaluation sessions (14/3/02)	Long term
Work package 1, E-learning presentation (14/3/02)	Long term
Work package 1, Overview of circulated report (14/3/02)	Long term
Textual chunk After the 2nd face-to-face meeting	
E-learning	Long term
E-learning problems	Long term
Discourse chunk From the 3rd face-to-face meeting	
Discussion of the tool (6/6/02)	Long term
Presentation on work package 1 – Results for evaluation study (7/6/02)	Long term
Presentation on work package 1 (7/6/02)	Long term
Discussion of issues emerging from presentation on work package 1 (7/6/02)	Long term
Presentation on work package 1, Discussing plans for deliverables in work package 1 (7/6/02)	Long term
Summary of documents to be sent (7/6/02)	Long term
Textual chunk After the 3rd face-to-face meeting	
Unmet learning needs questionnaire	Medium term
D1.1 Manual for accessible design	Medium term
Revised work plan for work packages 1 and 5	Long term
Chapter 3	Long term
Review of VoiceXML tools for work package 1	Long term
Discourse chunk From the 4th face-to-face meeting	
Review of work package 1 (12/9/02)	Medium term
Textual chunk After the 4th face-to-face meeting	
News	Short term

Table 5.1: Discourse and textual chunk themes for work package 1

Now presented are themes for each of the discourse and textual chunks showing the evolution of mutual understanding in work package 1. Twenty-two themes from the discourse chunks and 15 themes from the textual chunks have been identified for work package 1.

For the face-to-face interactions, ten themes were from the 1st face-to-face meeting. Five themes were from the 2nd face-to-face meeting. Six themes were from the 3rd face-to-face meeting and one theme was from the 4th face-to-face meeting. For the e-mail interaction, seven themes were found after the 1st face-to-face meeting. Two themes were found after the 2nd face-to-face meeting. Five themes were found after the 3rd face-to-face meeting. Lastly, one theme was found after the 4th face-to-face meeting.

Each theme is now examined in turn.

Discourse chunk, Overview of access technology and some of the issues and opportunities faced by visually impaired people using the Internet, 17/12/01 transcript

In this theme Charlotte provided an overview of issues and opportunities faced by visually impaired people using the Internet. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.2 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	1- spoken evidence

Table 5.2: Evidence of sub-states for Overview of access technology and some of the issues and opportunities faced by visually impaired people using the Internet

There was evidence of sub-state *1.1* following one team member informing Charlotte that they had a question to ask.

Overall, there was growth in mutual understanding, because the team was informed of some of the issues that visually impaired people face. This was salient information shared to the team, as everyone did not have knowledge of this area, however, is one that was important for the project goals and objectives. This theme established common ground. There was also evidence of increased mutual beliefs in this theme. There was no evidence of team member belief states altering. It was assumed that team member held belief that they held mutual beliefs on the issues discussed in this theme.

The next theme is demonstration of screen reader use by a real blind user using the Internet.

Discourse chunk, Demonstration of screen reader use (Jaws) by a blind person using the Internet, 17/12/01 transcript

In this theme Peter who was a blind user working for partner 3, showed a small team how he could interact with the Internet using Jaws. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.3 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	130 – all spoken evidences
2.1 (growth in mutual understanding and disagreement)	12 – all spoken evidences
1.2 (growth in mutual understanding and agreement to a disagreement)	5 – all spoken evidences
3.1 (growth in mutual understanding holding a neutral position)	2 – all spoken evidences
1.3 (growth in mutual understanding and agreement to a neutral position)	1 – spoken evidences

Table 5.3: Evidence of sub-states for Demonstration of screen reader use (Jaws) by a blind person using the Internet

There was evidence of sub-state *1.1* in the following situations. The use of speech in the demonstration was the main focus; Peter's introduction; using Jaws; looking at the Amazon website and Tesco website; question and answers on using Braille devices; looking at partner 3's website; Ryan Air's website; users relating to concepts and how a number of Internet sites were accessible. Evidence of sub-state *2.1* in the following situations. Information from the screen; talking about accessibility; leaving images on when using Jaws; talking about frames; showing information on the screen; Flash pages not working with Jaws; question by Ben on dialogue

systems; not having to learn what tab is and talking about not doing conversions. Evidence of sub-state *1.2* in the following situations. To leave images on when using Jaws; talking about frames; showing information on the screen and not doing conversions. Evidence of sub-state *3.1* in the following situations. Laptop perhaps not switched on and talking about frames. Evidence of sub-state *1.3* when asking if the power was not switched on.

Overall, there was growth in mutual understanding, because this small team was given an opportunity to see how a real user used Jaws to access the Internet. The team was divided into smaller sized teams to allow them to fit inside the demonstrator's room. This information was salient to the team as it provided background information to work towards the project goals. There was evidence of increased mutual beliefs in this theme and team member belief states altering. Utterances lead to beliefs in the members of the team that they do not hold mutual beliefs on all the issues which were discussed in this theme. However, team members do hold a mutual belief that that they do not hold mutual beliefs on all the issues in this theme as a result of the spoken utterances.

The next theme is change to the agenda.

Discourse chunk, Change to the agenda, 17/12/01 transcript

In this theme Charlotte informed everyone that there was going to be a small change to the agenda which had been circulated, because the room that they were using had to be vacated earlier than originally expected. However, time would still be made available for team members to interact with the technology, which had been shown and demonstrated earlier in the day, allowing self-testing to take place. There was evidence of growth in mutual understanding in this dialogue chunk.

Evidence of sub-states

Table 5.4 presents a summary of the sub-states found in this theme.

Sub-State	Frequency
3.1 (growth in mutual understanding holding a neutral position)	1 – spoken evidence
1.3 (growth in mutual understanding and agreement to a neutral position)	1– spoken evidence
1.1 (growth in mutual understanding and agreement)	12 – all spoken evidences
2.1 (growth in mutual understanding and disagreement)	1 – spoken evidence
1.2 (growth in mutual understanding and agreement to a disagreement)	1– spoken evidence

Table 5.4: Evidence of sub-states for Change to the agenda

There was evidence of sub-state *3.1* when not knowing what would be covered on the second day of the meeting. Evidence of sub-state *1.3* when another team member agreed that they also did not know what would be covered on the second day of the meeting.

Evidence of sub-state *1.1* in the following situations. Allowing team members to look at the technology, as today would be the only opportunity. Seven team members were showing an interest to look at the technology. Making suggestions on how to structure the remaining meeting time to allow those interested in looking at the technology to do so, and to allow discussions to take place in the interest of the project.

There was evidence of sub-state *2.1* in the following situations. Disagreeing to a proposal which was made to change the morning and the afternoon session for the second day of the meeting and evidence of sub-state *1.2*, when the person who made the proposal received feedback indicating that this proposal was not acceptable to them.

Overall, there was growth in mutual understanding, because all partners were informed of the change in agenda, and time was made available to hold a discussion for the project and to test the technology which had been demonstrated earlier on in the day. This theme established common ground. There was also evidence of increased mutual beliefs in this theme, that time would be made available for a discussion, team members who were interested in testing the technology could do this, and items on the agenda for the second day of the meeting could not be swapped. There was also evidence of altered belief states in this theme.

The next theme is an overview of the market for access technology.

Discourse chunk, Overview of the market for access technology, 17/12/01 transcript

In this theme Desmond and Paul provided a summary on their overview of access technology. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.5 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	15- all spoken evidences
2.1 (growth in mutual understanding and disagreement)	1- spoken evidence
1.2 (growth in mutual understanding and agreement to a disagreement)	1- spoken evidence

Table 5.5: Evidence of sub-states for Overview of the market for access technology

There was evidence of sub-state *1.1* in the following situations. Talking about Braille displays; Internet and Netscape browsers; speed magnification; different philosophies; placing presentation onto the FTP site and talking about Super-Nova. Evidence of sub-states *2.1* and *1.2* when a correction was given for an incorrectly used term and the corrected term was used in the rest of the conversation.

Overall, there was growth in mutual understanding, because partners were given the opportunity to hear salient information relevant to the project. This theme established common ground. There was also evidence of increased mutual beliefs in this theme. There was also evidence of team member belief states altering. Utterances lead to beliefs in the members of the team that they do not hold mutual beliefs on all the issues which were discussed in this theme. Further utterances then lead to the belief that team members hold this belief. An example of this was when the speaker in his presentation used an incorrect term.

The next theme is discussion.

Discourse chunk, Discussion, 17/12/01 transcript

In this theme Ronnie started of the discussion. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.6 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	4 – all spoken evidences
2.1 (growth in mutual understanding and disagreement)	1- spoken evidence

Table 5.6: Evidence of sub-states for Discussion

There was evidence of sub-state *1.1* in the following situations. Talking about partner 5; mentioning work package 1 and talking about user requirements. Evidence of sub-state *2.1* when talking about deciding on the work package.

Overall, there was growth in mutual understanding, because partners were involved in the discussion which Ronnie felt was important to discuss whilst all team members were together face-to-face. Salient information was shared to the team. This theme established common ground. There was also evidence of increased mutual beliefs in this theme. There was also evidence of team member belief states altering. Some utterances lead to beliefs in the members of the team that they did not hold mutual beliefs on all the issues which were discussed in this theme. However, team members did hold a mutual belief that that they did not hold mutual beliefs on all the issues in this theme. At other times team members held mutual belief(s) on issues being discussed.

The next theme is a short presentation by each of the partners on what work they have done in the last three months – partner 8 on work package 1.

Discourse chunk, Partner 8 on work package 1, 18/12/01 transcript

In this theme Hazel summarised what work she had done in the last 3-months. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.7 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	16 – spoken evidences 9 non-verbal evidences, head-nods
2.1 (growth in mutual understanding and disagreement)	2- all spoken evidences

Table 5.7: Evidence of sub-states for Partner 8 on work package 1

There was evidence of sub-state *1.1* in the following situations. Interesting survey findings concerning the use of authoring materials for producing e-learning; proposal of areas to look into; discussion on tools; E-learning portals; user requirements and

talking to potential users. Evidence of sub-state *2.1* when Jonathan said that he did not think that they had to have good knowledge of authoring tools.

In this theme there was evidence of growth in mutual understanding. Growth in mutual understanding was observed when salient information was shared to the team concerning the authoring tools for e-learning. This information established common ground with team members. There was evidence of increased mutual belief as well based on the evidence of utterances in the transcripts.

The next theme is a short presentation from partner 2 on work packages 2 and 6.

Discourse chunk, Partner 2 on work packages 2 and 6, 18/12/01 transcript

In this theme Annie informed the team of what they had been working on in the last 3-months. Some of the discussions were relevant to work package 1. There was evidence of growth in mutual understanding in this ensuing dialogue chunk. There was also evidence of no growth in mutual understanding.

Evidence of sub-states

Table 5.8 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	26 - spoken evidences 35 – non verbal evidences, head nods
5.1 (no perceived growth in mutual understanding)	Observed in 1 situation
2.1 (growth in mutual understanding and disagreement)	8– all spoken evidences
1.2 (growth in mutual understanding and agreement to a disagreement)	2 – all spoken evidences

Table 5.8: Evidence of sub-states for Partner 2 on work packages 2 and 6

There was evidence of sub-state *1.1* in the following situations. Continuing with task D1.1; not understanding what the project system was going to do; providing a VoiceXML page; understanding the project vision; showing blind people a sample and examining online tutorials.

Evidence of sub-state *5.1* in the following situation - not understanding the limit of what the user requirements need to be because what the project system is going to do has not been understood. Evidence of sub-state *2.1* in the following situations. What you cannot receive from a user requirements work package; talking about understanding screen readers; mentioning demonstrations; referring to information provided and when Ben said it does not matter if the tutorial was in VoiceXML. Evidence of sub-state *1.2* in the following situations. Referring to information already provided and when there was agreement that the tutorial does not have to be in VoiceXML.

There was growth in mutual understanding when partners were informed about the salient information regarding this work package. The VoiceXML page could be provided by a team member belonging to partner 9; need to understand the project vision; showing samples to blind people in order to gather their views and to find out the accessibility of online tutorials. There was evidence of increased mutual beliefs in this theme as well. There was also evidence of team members belief states altering. At the end of this theme the utterances showed that team members held a mutual belief on what could be done in the project. This was achieved by sharing information and ideas to the team. In this theme there was also evidence that team members did not hold mutual beliefs on some of the other issues that were discussed.

There was evidence of no growth in mutual understanding when Hazel said "*So I do not understand the limit of what the user requirements need to be, because I do not yet understand exactly what the project system is going to do*". In this situation it was assumed that the common ground and mutual beliefs did not increase after talking about such issues in this theme.

The next theme is a short presentation from partner 3.

Discourse chunk, Partner 3, 18/12/01 transcript

In this theme Charlotte summarised that they have been mainly involved in the literature review and looking at general web authoring tools. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

There was no grounding evidence for this theme.

Overall, there was growth in mutual understanding as a result of Charlotte informing the team what they had been working on in the last 3-months. This was salient information that was shared amongst the team members. There was also evidence of increased mutual belief in this theme. As no utterances were made it was assumed that the members of this team held mutual belief on this issue.

The next theme is a short presentation from partner 5.

Discourse chunk, Partner 5, 18/12/01 transcript

In this theme Lucy briefly summarised the work activities that partner 5 had been involved in. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.9 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	1 – spoken evidence 3 – non verbal evidences, head nods

Table 5.9: Evidence of sub-states for Partner 5

There was evidence of sub-state *1.1* in the following two situations. One, the German partners had presented part of the work that partner 5 had worked on during day one of the 2-day meeting. Two, the change of structure for the work packages.

Overall, there was growth in mutual understanding, because Lucy informed the team on what they had been working on with the German and Spanish organisations. The German partners had presented their results on the previous meeting day. Also, the need to change the structure of the work packages was shared. This was salient information that was shared amongst the team. This theme established common ground. There was also evidence of increased mutual beliefs in this theme. The non-verbal gestures which were provided were evidence that the belief that the German partners had covered aspects of their work was mutually believed by team members. An utterance provided by Lucy *'I think this is a common feeling'* showed evidence of mutual belief in reference to the change Jonathan made.

The next theme is developing a plan of future work.

Discourse chunk, Developing a plan of future work, 18/12/01 transcript

In this theme Hazel was developing a plan on how to tackle the work in this area. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.10 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	9– non verbal evidences, head nods 46 - spoken evidences

Table 5.10: Evidence of sub-states for Developing a plan of future work

There was evidence of sub-state *1.1* in the following situations. Forms are hard and finding ways to improve them could be a winner for the project; having a diary at the meeting; identifying time plans to action tasks; what can be expected for the March meeting; conducting questionnaires; identifying partner organisations who can support tasks; buying demo software; website design and flexibility of the tasks.

Overall, there was growth in mutual understanding because partners were working together to develop a plan for work activities relevant to the project. Information was salient to the team, and this theme established common ground. There was also evidence of increased mutual beliefs in this theme. There was also evidence of team member belief states altering. Utterances lead to beliefs in the members of the team that they did not hold mutual beliefs on all the issues which were discussed in this theme. However, team members did hold a mutual belief that that they do not hold mutual beliefs on all the issues in this theme.

The next theme is detailed work plan for the next 3-months (typed up plan discussed during the second day of the face-to-face meeting).

Textual chunk, Detailed work plan for the next 3-months (Typed up plan discussed during the second day of the face-to-face meeting)

Table 5.11 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Hazel	2	22/12/01
Desmond	4	7/1/02
Hazel	5	8/1/02
Hazel	7	11/1/02

Table 5.11: E-mail messages looking at the textual chunk, Detailed work plan for the next 3-months (Typed up plan discussed during the second day of the face-to-face meeting)

Messages showed evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as everyone was informed of the work plan which had been developed on day two of the meeting for work package 1. This information was important to share, as some partners had to leave the meeting before it was closed. Also, the plan had been developed on the whiteboard, so information would have been lost unless it was copied. Based on Desmond's suggestion that the timeframe was to short for the number of subjects proposed, Hazel reduced the original number, and took this into account for the new version of the plan. There was increased mutual belief in this theme. There was also evidence of team member belief state altering.

The next theme is authoring tool accessibility guidelines.

Textual chunk, Authoring tool accessibility guidelines

Table 5.12 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Jonathan	1	22/12/01

Table 5.12: E-mail messages looking at the textual chunk, Authoring tool accessibility guidelines

There was evidence of State *4*: (Growth in mutual understanding as a message was sent to the group, but not following discussions which took place when together at the face-to-face meeting) and State *6*: (Growth in mutual understanding even when no discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as the URL for the W3C document was salient information that was shared to the team. Authoring tool accessibility guidelines was information relevant to the project. There was increased mutual belief in this theme. It was assumed that team members held mutual belief on this issue as no further messages were sent.

The next theme is a report on problems encountered by visually impaired people on websites.

Textual chunk, Report on problems encountered by visually impaired people on websites

Table 5.13 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Thomas	6	11/1/02
Charlotte	16	21/1/02
Charles	23	1/2/02
Thomas	28	14/2/02

Table 5.13: E-mail messages looking at the textual chunk, Report on problems encountered by visually impaired people on websites

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding when salient information on problems encountered by visually impaired people and solutions to the problems were sent to everyone in the team. Some information had been discussed on these issues at the face-to-face meeting. There was increased mutual belief in this theme. There was also evidence that team members held mutual beliefs on the issues discussed in this theme.

The next theme is e-learning.

Textual chunk, E-learning

Table 5.14 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Thomas	6	11/1/02
Hazel	25	7/2/02
Mary	42	11/3/02
Mary	43	11/3/02
Hazel	45	12/3/02

Table 5.14: E-mail messages looking at the textual chunk, E-learning

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as documents related to e-learning were circulated amongst the team. E-learning was important to the project. There was increased mutual belief in this theme. There was also evidence of differences in team member belief state. Message *25* is an example.

The next theme is the protocol of evaluation for e-learning.

Textual chunk, Protocol of evaluation for e-learning

Table 5.15 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Hazel	8	11/1/02
Hazel	24	6/2/02
Hazel	25	7/2/02

Table 5.15: E-mail messages looking at the textual chunk, Protocol for evaluation for e-learning

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as the protocol of evaluation for e-learning was developed by partner 8 and circulated to the team. Sadly no comments had been received by any of the other partners on it, only Mary had provided comments. Mary worked at the same partner organisation as Hazel. There was increased mutual belief in this theme.

The next theme is the questionnaire on unmet learning needs.

Textual chunk, Questionnaire on unmet learning needs

Table 5.16 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Hazel	8	11/1/02
Charles	10	15/1/02
Ronnie	13	18/1/02
Thomas	14	18/1/02
Hazel	20	22/1/02

Table 5.16: E-mail messages looking at the textual chunk, Questionnaire on unmet learning needs

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding when Hazel designed the questionnaire on unmet learning needs and comments were received to improve the questionnaire. There was increased mutual belief in this theme. It was assumed that team members held mutual belief on this issue as comments were requested and received by team members.

The next theme is Dreamweaver.

Textual chunk, Dreamweaver

Table 5.17 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Hazel	22	29/1/02

Table 5.17: E-mail messages looking at the textual chunk, Dreamweaver

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *3*: (Growth in mutual understanding even when no discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as relevant information to the project was being shared. There was increased mutual belief in this theme. It was assumed that team members held mutual belief on the issues discussed in this theme.

The next theme is informing of late arrival.

Discourse chunk, Informing of late arrival, 14/3/02 transcript

In this theme Hazel informed the team about Mary's late arrival to the meeting. There was evidence of growth in mutual understanding in this ensuing discourse chunk.

Evidence of sub-states

Table 5.18 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement).	4 – all spoken evidences

Table 5.18: Evidence of sub-states for Informing of late arrival

There was evidence of sub-state *1.1* when Hazel informed Jack that Mary would be attending the meeting but they could start without her. Also, when Jack was informed that Mary would be delivering one of the presentations on work package 1.

Overall, there was growth in mutual understanding, because the team was informed of salient information regarding Mary running late for the meeting, and a start could be made in her absence. There was evidence of increased mutual beliefs in this theme. Utterances lead to beliefs in the members of the team that they hold mutual beliefs on all the issues which were discussed in this theme.

The next theme is review of work package 1, questionnaire data gathered.

Discourse chunk, Review of work package 1, questionnaire data gathered, 14/3/02 transcript

In this theme Hazel informed the team of the responses she had to the questionnaires and preliminary conclusions drawn from it. There was evidence of growth in mutual understanding in this ensuing discourse chunk.

Evidence of sub-states

Table 5.19 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	15 – spoken evidences 2 – non verbal evidences, head nods
2.1 (growth in mutual understanding and disagreement)	2– all spoken evidences
1.2 (growth in mutual understanding and agreement to a disagreement)	1- spoken evidence

Table 5.19: Evidence of sub-states for the Review of work package 1, questionnaire data gathered

There was evidence of sub-state *1.1* in the following situations. Repeating information which was not heard; identifying what problems the project could work towards; interesting results from the questionnaire; having a demonstration of VoiceXML and mentioning that Mary would also present some of the findings. Evidence of sub-state *2.1* in the following situations. Not just talking about e-learning and Adam presenting the work. Evidence of sub-state *1.2* when Hazel was informed that Adam would be presenting the work and not Thomas as she had assumed.

Overall, there was growth in mutual understanding, because all partners were informed of the responses which were received to the questionnaires which had been answered and returned. Salient information was shared with the team regarding preliminary findings. There was evidence of increased mutual beliefs in this theme and team member belief states altering.

The next theme is overview of the evaluation sessions.

Discourse chunk, Overview of the evaluation sessions, 14/3/02 transcript

In this theme Mary presented an overview of the evaluation sessions, which were held. There was evidence of growth in mutual understanding in this ensuing discourse chunk.

Evidence of sub-states

Table 5.20 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	46 – spoken evidences 7- non verbal evidences, head nods
2.1 (growth in mutual understanding and disagreement)	4 –all spoken evidences
1.2 (growth in mutual understanding agreement to a disagreement)	1 – spoken evidence

Table 5.20: Evidence of sub-states for Overview of the evaluation sessions

There was evidence of sub-state *1.1* in the following situations. Strange message on the screen; plug-in potentially improving the problems experienced with Jaws; findings from the session; results from the evaluation feeding into the development of the portal; paying for e-learning courses; solutions to the problems; providing this presentation to Annie to make preparations for her presentation tomorrow and Mary requiring a variety of problems. Evidence of sub-state *2.1* - to go onto the conclusion slide and talking about more than just the presentation. Evidence of sub-state *1.2* when it was mentioned to have e-learning courses, and not just the presentation.

Overall, there was evidence of growth in mutual understanding. Findings from the evaluation provided salient information. There was evidence of increased mutual beliefs in this theme and team member belief states altering.

The next theme is work package 1, E-learning presentation.

Discourse chunk, Work package 1, E-learning presentation, 14/3/02 transcript

In this theme Adam presented his work on e-learning. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.21 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	40 – spoken evidences 4 - non verbal evidences, head nods
3.1 (growth in mutual understanding holding a neutral position)	2 – all spoken evidences
2.1 (growth in mutual understanding and disagreement)	3 – all spoken evidences
1.2 (growth in mutual understanding and agreement to a disagreement)	2 – all spoken evidences

Table 5.21: Evidence of sub-states for Work package 1, E-learning presentation

There was evidence of sub-state *1.1* in the following situations. Presentation by Adam was on e-learning and the results on their study; confirmation of words used; summary of findings; they would discuss findings later on once everyone has a chance to read the report; explanation of problems; summary of accessibility findings and answering a question on the language of the sites. Evidence of sub-state *3.1* in the following situations. Paul not being sure about virtual libraries and Desmond not understanding what Adam had said. Evidence of sub-state *2.1* in the following situations. Mary suggesting that classifications could belong to more than one category; Braille software and talking about other screen readers. Evidence of sub-state *1.2* when Braille software was mentioned and referring to other screen readers.

Overall, there was growth in mutual understanding, because salient information was shared to the team on the e-learning presentation. Adam and Thomas also explained their findings. There was evidence of increased mutual beliefs in this theme and team member belief states altering.

The next theme is work package 1, Overview of circulated report.

Discourse chunk, Overview of circulated report, 14/3/02 transcript

In this theme Mary presented an overview of the report she had circulated by e-mail. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.22 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	20 – spoken evidences 5- non verbal evidences, head nods
2.2 (growth in mutual understanding and disagreement to a agreement)	1 – spoken evidence

Table 5.22: Evidence of sub-states for Overview of circulated report

There was evidence of sub-state *1.1* in the following situations. Level of lighting was acceptable to team members in the room; outlining the structure of the presentation; being able to read information on the screen; sharing the findings; WAI guidelines; links in the report; templates and sharing information with the team. Evidence of sub-state *2.2* when a team member said that they could not see the information that Mary was showing.

Overall, there was growth in mutual understanding, because salient information was shared to the team, regarding what had been done for work package 1. There was evidence of shared mutual belief when Mary informed the team that links were included in the report. There was evidence of increased mutual beliefs in this theme and team member belief states altering. However, team members held mutual belief that the lighting in the room was sufficient, and that Mary had included URL's in the report.

The next theme is E-learning.

Textual chunk, E-learning

Table 5.23 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Jason	10	5/4/02
Mary	29	8/5/02

Table 5.23: E-mail messages looking at the textual chunk, E-learning

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as e-learning was an important part of the project and information was shared to the team on it. There was increased mutual belief in this theme. There was no evidence of team members belief state altering, and it is assumed that team members held mutual belief as no messages were sent in reaction to it.

The next theme is E-learning problems.

Textual chunk, E-learning problems

Table 5.24 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Mary	11	5/4/02

Table 5.24: E-mail messages looking at the textual chunk, E-learning problems

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *3*: (Growth in mutual understanding even when no discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as Mary fulfilled an action which was decided during the face-to-face meeting, sending video clips to technical partners. Salient information was shared to the team, especially partners who said that they would find this information useful in their work. There was increased mutual belief in this theme. It was assumed team members held mutual belief as no messages were sent in reaction to it.

The next theme is discussion of the tool.

Discourse chunk, Discussion of the tool, 6/6/02 transcript

In this theme Jack started of the discussion on the tool which team members had been presented with. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.25 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	3 – all spoken evidences

Table 5.25: Evidence of sub-states for Discussion of the tool

There was evidence of sub-state *1.1* in the following situations. Jack reporting that the users from work package 1 are doing all the user requirements. Also, when Jack said that the specification dossier would include the requirements.

Overall, there was growth in mutual understanding, because salient information was shared to the team. Jack mentioned that the user requirements were coming from work package 1 and that the document would also include the requirements in there. There was also evidence of increased mutual beliefs in this theme.

The next theme is presentation on work package 1 – Results for evaluation study.

Discourse chunk, Presentation on work package 1 – results for evaluation study, 7/6/02 transcript

In this theme Mary presented the results from the evaluation study. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.26 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	1 – spoken evidence

Table 5.26: Evidence of sub-states for Presentation on work package 1, Results for evaluation study

There was evidence of sub-state *1.1* when Mary was talking about the navigation category.

Overall, there was growth in mutual understanding, because salient information was shared to the team, based on the results of the evaluation study. There was evidence of increased mutual beliefs in this theme. It was assumed that team members held mutual belief on this issue as no further utterances were made in relation to this issue or any of the points identified from the evaluation study.

The next theme is the presentation on work package 1.

Discourse chunk, Presentation on work package 1, 7/6/02 transcript

In this theme Mary, Erin and Charles presented their work on this work package. However, some of the discussions in this theme were relevant to this work package. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.27 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	7 – all spoken evidences
2.1 (growth in mutual understanding and disagreement)	1– spoken evidence

Table 5.27: Evidence of sub-states for Presentation on work package 1

There was evidence of sub-state *1.1* in the following situations. Erin to share information with the team; to speak clearly and surprising results. Evidence of sub-state *2.1*, that there were no questions to be asked, as information was clearly presented.

Overall, there was growth in mutual understanding, because salient information was shared to the team. There was evidence of increased mutual beliefs in this theme. Utterances lead to beliefs in the members of the team that they hold mutual beliefs on all the issues which were discussed in this theme.

The next theme is discussion of issues emerging from presentation on work package 1.

Discourse chunk, Discussion of issues emerging from presentation on work package 1, 7/6/02 transcript

In this theme James initiated the discussion. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.28 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	2 – spoken evidences 3 – non verbal evidences, head nods

Table 5.28: Evidence of sub-states for Discussion of issues emerging from presentation on work package 1

There was evidence of sub-state *1.1* in the following situations. Information on what the tool would deliver cannot come from the user requirements work and the importance of face-to-face meetings.

Overall, there was growth in mutual understanding, because salient information was shared to the team. There was evidence of increased mutual beliefs in this theme and team member belief states altering. There was also evidence that team members held mutual belief on the issue raised by James that *'face-to-face meetings are a better way to resolve misunderstandings'*.

The next theme is the presentation on work package 1, discussing plans for deliverables in work package 1.

Discourse chunk, Presentation on work package 1 – Discussing plans for deliverables in work package 1, 7/6/02 transcript

In this theme Mary went through the plan for the two deliverables that had been distributed a couple of days prior to the meeting by Hazel. Hazel was unable to attend this meeting. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.29 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	62 – spoken evidences 4 – non verbal evidences, head nods
2.1 (growth in mutual understanding and disagreement)	10 – all spoken evidences
2.2 (growth in mutual understanding and disagreement to a agreement)	1- spoken evidence
1.2 (growth in mutual understanding and agreement to a disagreement)	6 – all spoken evidences

Table 5.29: Evidence of sub-states for Presentation on work package 1 – Discussing plans for deliverables in work package 1

There was evidence of sub-state *1.1* in the following situations. Everyone had received Hazel's plans by e-mail; extra copies were available; contributing partners to chapters in the deliverable; proposals on re-structuring some of the work; Desmond would try to provide input; identifying problems; talking about questionnaires; conducting evaluations; establishing who would put the report together; submission of documents to the commission and reminding the team that they were working on a preliminary document. There was evidence of sub-states *2.1* in the following situations. No more questions to be asked; contributions to the report; identifying a mistake; talking about the division of tasks; writing and putting together the report; identifying wrong letters, making changes and unrealistic timings. Evidence of sub-state *2.2* when answering a question. Evidence of sub-state *1.2* in the following situations. No questions to be asked; answering a question; making comments; identifying a mistake and referring to letters incorrectly.

Overall, there was growth in mutual understanding, because salient information was shared to the team. The discussion on the work plan was important, as it was one of the deliverables to be sent to the commission. The team was reminded of what chapters this deliverable would include, and the partners responsible for producing it. Establishing who would put the entire deliverable together was useful as well. There was also evidence of increased mutual beliefs in this theme and team member belief states altering. However, team members held mutual belief on who was responsible for contributing towards each chapter that Mary mentioned.

The next theme is a summary of the documents to be sent.

Discourse chunk, Summary of documents to be sent, 7/6/02 transcript

In this theme James summarised all deliverables to be sent to the commission during the periods of June to September. There was evidence of growth in mutual understanding in this ensuing dialogue chunk.

Evidence of sub-states

Table 5.30 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	4 – all spoken evidences

Table 5.30: Evidence of sub-states for Summary of documents to be sent

There was evidence of sub-state *1.1* in the following situations. Deliverables to be included; when documents should be sent to the team and documents coming from work package 1.

Overall, there was growth in mutual understanding, because salient information was shared to the team. It was useful to remind team members of what documents had to be sent and when. James also mentioned that he would send an e-mail to the team to inform them of the dates nearer the time as well. There was also evidence of increased mutual beliefs in this theme. It was assumed that team members held mutual belief on this issue as no further utterances were made in relation to this issue.

The next theme is the unmet learning needs questionnaire.

Textual chunk, Unmet learning needs questionnaire

Table 5.31 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Mary	35	31/7/02
Hazel	40	12/8/02

Table 5.31: E-mail messages looking at the textual chunk, Unmet learning needs questionnaire

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as salient information was shared to the team. Hazel in message *40* mentioned the dates by which the questionnaire must be returned. The number of questionnaires which should be completed was included as well. There was increased mutual belief in this theme as well.

The next theme is D1.1 manual for accessible design.

Textual chunk, D1.1 Manual for accessible design

Table 5.32 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Mary	35	31/7/02
Hazel	41	13/8/02

Table 5.32: E-mail messages looking at the textual chunk, D1.1 Manual for accessible design

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as this document was made available to the team and comments received were shared with the team. This formed salient information, other information which was salient included informing the team where to find this document found on the FTP site. There was also evidence of increased mutual beliefs in this theme.

The next theme is the revised work plan for work packages 1 and 5.

Textual chunk, Revised work plan for work packages 1 and 5

Table 5.33 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Mary	4	13/6/02
Mary	42	13/8/02

Table 5.33: E-mail messages looking at the textual chunk, Revised work plan for work packages 1 and 5

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message). Mary was the only person to create a discussion thread when looking at this theme.

Overall, there was growth in mutual understanding as the team was made aware of Hazel's plan to check her mail in the evening and that a draft version had been placed onto the FTP site. Comments were requested from team members as this document was still a draft. There was also increased mutual belief in this theme. It was assumed that team members held mutual belief on this issue as there was no evidence of team members belief states altering.

The next theme is chapter 3.

Textual chunk, Chapter 3

Table 5.34 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Mary	31	22/7/02
Mary	35	31/7/02

Table 5.34: E-mail messages looking at the textual chunk, Chapter 3

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as a draft of this chapter was sent to the team, and Mary was explicit in the type of information she required from team members. There was also evidence of increased mutual belief in this theme. It was assumed that team members held mutual belief on this issue as no further messages were sent on it.

The next theme is review of VoiceXML tools for work package 1.

Textual chunk, Review of VoiceXML tools for work package 1

Table 5.35 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Charles	26	28/6/02

Table 5.35: E-mail messages looking at the textual chunk, Review of VoiceXML tools for work package 1.

There was evidence of State *4*: (Growth in mutual understanding as a message was sent to the group, but not following discussions which took place when together at the face-to-face meeting) and State 6: (Growth in mutual understanding even when no discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as Charles provided salient information to the team in the form of a document, in order to make it clearer what had to be done for this task. There was also evidence of increased mutual belief in this theme. It was assumed that team members held mutual belief on this issue as no further messages were sent on it.

The next theme is review of work package 1.

Discourse chunk, Review of work package 1, 12/9/02 transcript

In this theme Hazel and Mary reviewed the work which had been done in work package 1. There was evidence of growth in mutual understanding in this theme.

Evidence of sub-states

Table 5.36 presents a summary of the sub-states and frequency found in this theme.

Sub-State	Frequency
1.1 (growth in mutual understanding and agreement)	27 – all spoken evidences

Table 5.36: Evidence of sub-states for Review of work package 1

There was evidence of sub-state *1.1* in the following situations. Size of deliverable D1.1; summarising how tasks were actioned when Mary made a request; congratulating the work in this work package; Mary leaving the project team; document version the commission has and potential new information to send to the commission.

Overall, there was growth in mutual understanding, because salient information was shared to the team. Hazel and Mary reviewed the work that they had both been working on. The team was also informed about Mary leaving the project and to contact Hazel directly in her absence. There was also evidence of increased mutual beliefs in this theme. Utterances lead to beliefs in the members of the team that they hold mutual beliefs on all the issues which were discussed in this theme.

The next theme is news.

Textual chunk, News

Table 5.37 displays who sent messages relating to this theme.

Team member	E-mail number	Date
Mary	7	30/9/02
Jack	9	9/10/02

Table 5.37: E-mail messages looking at the textual chunk, News

There was evidence of State *1*: (Growth in mutual understanding as the message was sent to the entire group, following a face-to-face discussion. This state focused on the initial message that was sent to the team) and State *2*: (Growth in mutual understanding as discussion threads emerged from the original message).

Overall, there was growth in mutual understanding as team members were informed that Mary was leaving the project team. This was salient information shared to the team. There was also evidence of increased mutual belief in this theme. It was assumed that team members held mutual beliefs on these issues as no further messages were sent in response to it.

In summary, this section has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. One situation resulted in no growth in mutual understanding - when a comment was made that it was hard to understand the limit of the user requirements work as it was not clear what the project was going to do.

Face-to-face meetings gave team members an opportunity to share what work was done. It was also an opportunity to inform people of areas that were relevant to the project, because everyone may not have knowledge of all areas. A work plan was also devised to show what work could be undertaken in this area.

After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding. Information was circulated that would be of interest to team members. In addition, most messages results in a discussion thread forming. However, there was one situation of no growth in mutual understanding in e-mail messages, when the team was informed, partner 4 who was working on this work package would provide a summary of what work they had done in the last 3-months. This was proposed because partner 4 had to leave the meeting, before having the opportunity to inform the team face-to-face. However, partner 4, following the face-to-face meeting sent no message.

In this work package user group partners helped to identify the usability requirements of accessibility and web authoring tools. This information was particularly useful for those working in technical development, for example, work package 3. In addition, few team members were blind and/or visually impaired, thus able to give requirements based on own real needs. They were also able to tell team members how accessible existing tools were.

By the end of the data collection period, this work package was completed.

The next section looks at work package 2.

5.2.2 Work package 2: Plugins for speech recognition and synthestis integration, with the possibility of adjusting the speed of the synthisiser

For this work package there were 11 themes from the discourse chunks and five themes from the textual chunks.

For face-to-face interactions, four themes were from the 1st and 2nd face-to-face meeting. Three themes were from the 3rd face-to-face meeting. For e-mail interactions, one theme each was found after the 1st and 2nd face-to-face meeting. Lastly, three themes were found after the 3rd face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. Seven situations resulted in no growth in mutual understanding. Not being clear on linkages between work packages 1 and 2. However, this was clear at the kick-off meeting. Discussions taking place on what the tool would do or what the tool could do. What is being said makes the vision less clearer. Loosing the vision. Being told that filling in forms was not difficult for blind people, despite being told the opposite during a previous face-to-face meeting. Technical partners stating that they do not know what needs to be done for the technical work, despite team members contributing towards how they could progress with the work.

Face-to-face meetings gave team members an opportunity to share what work was done and in particular to show demonstrations in order to gather feedback and comments from the team. After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding. Information was circulated that would be of interest to team members, reports and web page URL's. In addition, there was the same number of messages resulting in discussion threads forming and not forming.

In this work package technical partners showed the team what work they had done and the demonstrations they had prepared. Relevant feedback was given to make progress in this work package. By the end of the data collection period, this work package was completed.

The next section looks at work package 3.

5.2.3 Work package 3: Tool development

For this work package there were 18 themes from the discourse chunks and eight themes from the textual chunks.

For the face-to-face interactions, five themes were from the 1st face-to-face meeting. Two themes were from the 2nd face-to-face meeting. Seven themes were from the 3rd face-to-face meeting and four themes were from the 4th face-to-face meeting. For e-mail interactions, two themes each were found after the 1st and 2nd face-to-face meeting. One theme was found after the 3rd face-to-face meeting. Lastly, three themes were found after the 4th face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. Four situations

resulted in no growth in mutual understanding. Problems understanding what the plug-in could do that a traditional screen reader could not. Was expecting to see something different. Not understanding what was being shown. Also, the translator for Michael still sharing with the team that MS Word should be used to author e-learning content.

Face-to-face meetings gave team members an opportunity to share what work was done since the previous meeting and in particular to show demonstrations in order to gather feedback and comments from team members. The face-to-face meeting also gave team members the opportunity to interact with technology which was demonstrated to them that is used by visually impaired and blind people. This was also the first time that partner 4 shared with the team what work they had been working on in the project. However, the translator became very involved in the discussion despite not being involved in the project. The translator also found it hard to believe what other team members were telling him on what blind team members could do with websites. After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding.

By the end of the data collection period, this work package was not completed. Work package 3 was scheduled to end in month 24. The discussions in this work package were interesting as some team members wanted to change the objectives of the project. However, there were reactions from other team members saying that this was not the way that European Union projects work. The main difficulties encountered in this work package appeared to be the technical partners not understanding the difficulties experienced by blind and visually impaired people and their needs. However, an opportunity was given during one of the face-to-face meetings to interact with the technology which had been demonstrated to them by a blind person. Comments which were received on the demonstrations, especially from the blind and visually impaired people was that they could not see the innovation on what was being shown. At the end of the data collection period, it appears that reasonable progress was being made in the developmental work in this work package.

The next section looks at work package 4.

5.2.4 Work package 4: Creation of an accessible e-learning portal

For this work package there were 19 themes from the discourse chunks and nine themes from the textual chunks.

For face-to-face interactions, five themes were from the 1st face-to-face meeting. Seven themes were from the 2nd face-to-face meeting. Five themes were from the 3rd face-to-face meeting and two themes were from the 4th face-to-face meeting. For e-mail interactions, one theme was found after the 1st face-to-face meeting. Two themes were found after the 2nd face-to-face meeting. Four themes were found after the 3rd face-to-face meeting and two themes were found after the 3rd face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. One situation resulted in no growth in mutual understanding. This was observed when Kenneth said that they were not moving beyond what screen reader technology would do and what screen reader technology would be doing in

the very near future. Although it is work package 4 that is being examined here, contributions from work in work package 1 was also relevant to this work package.

Face-to-face meetings gave team members an opportunity to share what work was done since the previous meeting and in particular to show demonstrations in order to gather feedback and comments from team members. After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding. Relevant documents were sent, interesting information and work plans.

The work in this work package started earlier than the scheduled plan. By the end of the data collection period, this work package was not completed, as it was scheduled to end in month 24. At the end of the data collection period, it appears that reasonable progress was being made in the developmental work in this work package. Changes to the prototype were made based on comments and feedback from team members, face-to-face and through e-mail. Also, the continuation in the work would result in the languages of all user partners being present in the e-learning portal. At the end of the first year, there was only one language and a small number of pages to demonstrate what the e-learning portal was trying to achieve.

The next section looks at work package 5.

5.2.5 Work package 5: Evaluation

For this work package there were nine themes from the discourse chunks and six themes from the textual chunks.

For face-to-face interactions, three themes were from the 2nd face-to-face meeting and six themes were from the 3rd face-to-face meeting. For e-mail interactions, one theme was found after the 2nd face-to-face meeting. Two themes were found after the 3rd face-to-face meeting. Lastly, three themes were found after the 4th face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. There were no examples of situation which resulted in no growth in mutual understanding in this work package.

Face-to-face meetings gave team members an opportunity to share what work was done since the previous meeting, results from evaluations conducted, discussing work plans and informing team members by offering incentives to subjects, for example, payments to increase the number of subjects for the evaluations which need to be performed. Relevant work from work package 1 was also included here if it mentioned any evaluations which were conducted. After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding. Relevant documents were sent, interesting information and work plans. At the end of the data collection period, it appears that reasonable progress was made in the evaluation work.

The next section looks at work package 6.

5.2.6 Work package 6: Dissemination, Standardisation and Exploitation

For this work package there were 11 themes from the discourse chunks and eight themes from the textual chunks.

For face-to-face interactions there were three themes from the 1st face-to-face meeting. One theme was from the 3rd face-to-face meeting and two themes were from the 4th face-to-face meeting. For e-mail interactions, two themes each were found after the 1st, 2nd, 3rd and 4th face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. There were four situations which resulted in no growth in mutual understanding in this work package. Each situation involved informing team members that information should not be shared outside of the project team, without informing the team before hand and getting permission from all team members that this information could be shared outside of the team.

Face-to-face meetings gave team members an opportunity to share what contacts were made since the previous meeting and information which had been disseminated outside of the project team. After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding.

At the end of the data collection period, it appears that reasonable progress was being made in disseminating information on the project. This work package will end in month 27.

The next section looks at work package 7.

5.2.7 Work package 7: Project management

For this work package there were 71 themes from the discourse chunks and 46 themes from the textual chunks.

For the face-to-face interactions, 14 themes were from the 1st face-to-face meeting. 15 themes were from the 2nd face-to-face meeting. 24 themes were from the 3rd face-to-face meeting and 18 themes were from the 4th face-to-face meeting. For e-mail interactions, eight themes were found after the 1st face-to-face

meeting. 11 themes were found after the 2nd face-to-face meeting. 17 themes were found after the 3rd face-to-face meeting. Lastly, ten themes were found after the 4th face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. There were two situations from two themes, reporting and next meeting date which resulted in no growth in mutual understanding in this work package. For *reporting* there was no growth in mutual understanding because there was no clear establishment of what the reporting period should be and for *next meeting date*, to hold meetings on a Friday and Saturday.

Face-to-face meetings gave team members an opportunity to share the current situation for themes discussed through e-mail. Also, during face-to-face meetings, summaries were made on what work needed to be actioned and who would be involved. After the face-to-face meetings, a number of interactions took place through e-mail, looking at themes and issues discussed during the face-to-face meetings. This also created growth in mutual understanding. In particular reports were produced by circulating draft versions and requesting comments, improvements, suggestions and input from team members.

At the end of the data collection period, it appears that reasonable progress was being made in the project management activities. This work package will end in month 27.

The next section looks at category other.

5.2.8 Other

Other refers to themes which have been identified which were interesting but did not fit into any of the seven work packages mentioned. There were two themes from the discourse chunks and five themes from the textual chunks. These two themes were availability and glossary.

For face-to-face interactions, the two themes were from the 3rd face-to-face meeting. For e-mail interactions, one theme each was found after the 1st and 2nd face-to-face meeting. Lastly, three themes were found after the 3rd face-to-face meeting.

Appendix W has shown that nearly all face-to-face interactions resulted in growth in mutual understanding. 1.1 (agreement) was also the most frequently occurring sub-state. There were no situations which resulted in no growth in mutual understanding.

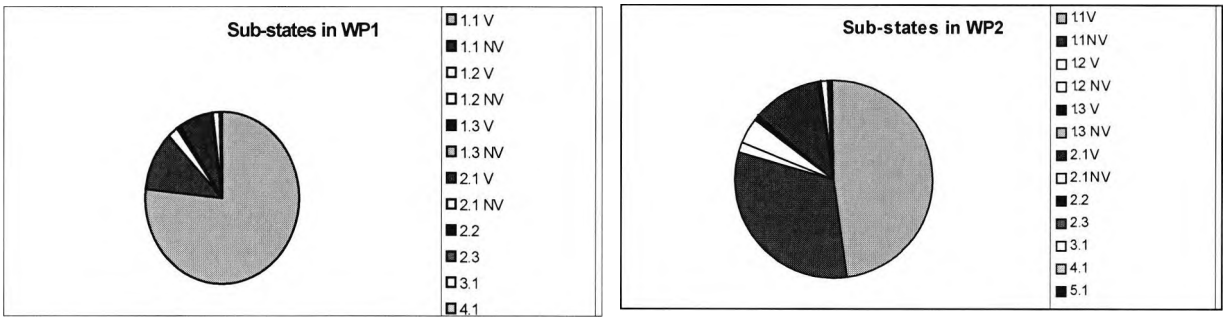
It was interesting to see that team members only informed each other of availability through e-mail. Also, although a glossary was developed there was no indication that team members were using it.

The next section provides a summary for monitoring the evolution of mutual understanding.

5.2.9 Summary

Monitoring the evolution of mutual understanding for each of the work packages and category other has shown that the number of themes in both discourse and textual chunks vary. Also, when examining the

sub-states, it shows that for each work package sub-state 1.1 was by far the most frequently occurring. This was confirmed by the following graphical representations in figure 5.1.



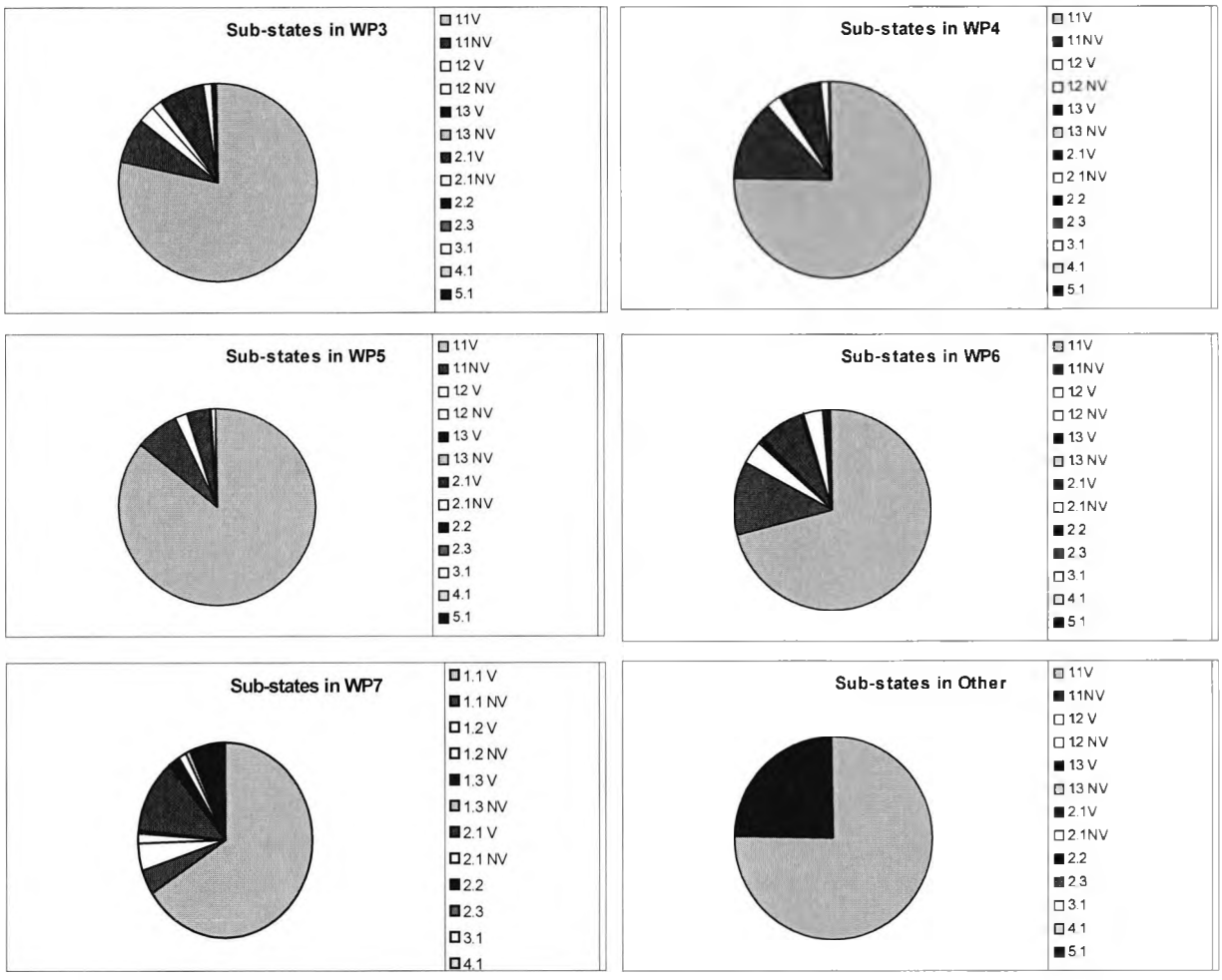


Figure 5.1: Summary of all sub-states for the seven work packages and category other

Only sub-state 5.1 resulted in no growth in mutual understanding. All other sub-states represented growth in mutual understanding. For sub-states 4.1 and 5.1 the graphical representations show the number of situations in which that sub-state had been observed. In each charts *V* represents verbal evidence and *NV* represents non-verbal evidences. It was observed that verbal evidences occured more than non-verbal evidences.

When looking at the interactions that take place following a face-to-face meeting, most of the interactions take place as a result of continuing discussions from the face-to-face meeting. This was confirmed in the following graphical representation in figure 5.2. States 1 and 2 show that the interactions take place following a face-to-face discussion. States 4 and 5 show that the interactions take place not following a face-to-face discussion. States 2 and 5 show threads forming in the interactions and state 7 shows no growth in mutual understanding.

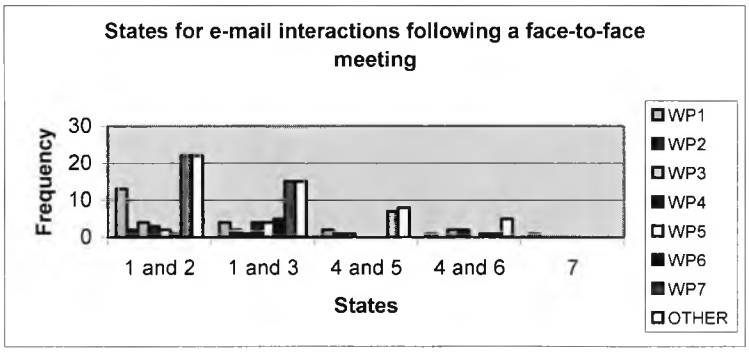


Figure 5.2: Summary of states for e-mail interactions following a face-to-face meeting

Comparing interactions which take place face-to-face and through e-mail shows that no growth in mutual understanding is more likely to be found in a face-to-face interaction than a e-mail interaction.

The next section provides an overview of the method which evolved from the process to monitor mutual understanding.

5.2.10 Overview of the method which evolved from the process to monitor mutual understanding

Summarised here are methods which evolved from the process to monitor the evolution of mutual understanding in the two types of interactions which were the focus of this investigation. Dialogue based data is examined first.

5.2.10.1 Monitoring mutual understanding using dialogue based data

According to this researcher, dialogue based data refers to any interactions involving two or more persons which take place via the telephone, video recording, audio recording or face-to-face. To apply the researcher's method to monitor the evolution of mutual understanding in an interaction, transcripts of the dialogue are required. This summary details the steps that are necessary to monitor mutual understanding using transcripts.

Step 1: Choosing an interaction

- Select an interaction of your choice to collect data;
- Ensure there are two or more persons involved in the interaction;
- Obtain informed consent.

Step 2: Collecting data

- Use appropriate media to capture the interaction;
- Also, take hand-written notes. Notes should identify who is speaking at each turn. This can be especially useful if the voices you are hearing are not known, thus not easily recognisable.

Step 3: Processing your data

- Produce transcripts of the verbal interaction. Depending of the length of the interaction you may choose to transcribe the interaction in full or by identifying dialogues of interest or themes of interest;
- If you used media which also collected non-verbal interactions, incorporate them into your transcripts;
- In your transcript identify theme(s) to determine discourse chunks. Discourse chunks aim to make analysis easier than using the entire transcript.

Step 4: Monitoring mutual understanding

This step is divided into eight sub-steps.

Step 4.1: Identifying grounding evidence

- Identify grounding evidence(s) in your transcripts to show evidence of understanding. Examine literature to see what types of utterances can be used to display grounding evidence. Remember that to show evidence of understanding requires a dialogue involving at least two people, and cannot be based on a dialogue with just one person

Step 4.2: Applying characterised sub-states 1.1-3.1 to the grounding evidences to show growth in mutual understanding on a moment-by-moment basis

- Apply the relevant sub-states for states 1, 2, 3 to the appropriate grounding evidence(s) you have identified;
- Remember context is important when applying the relevant sub-states to the grounding evidence(s). For example, agreement can be just agreement, agreement to a disagreement or agreement to a neutral position (Sub-states 1.1-1.3). Disagreement can be just disagreement, disagreement to a agreement or disagreement to a neutral position (Sub-states 2.1-2.3). You can also hold a neutral position, which is neither agreeing or disagreeing (Sub-state 3.1);
- It is important to bear the following two points in mind when performing this step:
  - A single line of utterance may identify more than one grounding evidence. For example, agreement followed by disagreement. This is typically found using conjunctions such as *'But'*;
  - If you have both verbal and non-verbal evidence, this is counted as two separate evidences.

Step 4.3: Applying characterised sub-state 4.1 to the grounding evidences to show growth in mutual understanding

- To determine evidence of sub-state 4.1 you are not required to identify individual grounding evidence(s) as you were required to do in step 4.2. This is because step 4.3 requires you to look at the transcript, or your discourse chunk. Sub-state 4.1 shows evidence of no agreement - relevant parties understanding that there is no agreement yet. Sub-state 4.1 is likely to display a combination of evidences of sub-states from state 1 (Agreement) and state 2 (Disagreement);
- When you find evidence of sub-state 4.1, it is important to identify the number of situations this sub-state was found in.

Step 4.4: Applying characterised sub-state 5.1 to the grounding evidences to show no growth in mutual understanding

- To determine evidence of sub-states 5.1 you are not required to identify individual grounding evidence(s) as you were required to do in step 4.2. This is because step 4.4 requires you to look at the transcript, or your discourse chunk. Sub-state 5.1 shows no perceived growth in mutual understanding. In this sub-state, common ground and mutual beliefs do not become larger, they remain the same over a period of time;
- When you identify evidence of sub-state 5.1, like sub-state 4.1, it is important to identify the number of situations this sub-state was found in.

Step 4.5: Identifying mutual belief

- In this work mutual belief is defined as a belief that is held by each member of a team, and the members of this team believe that they all hold this belief;
- To identify mutual belief you need to look at the transcript or discourse chunk:
  - Utterances which provide evidence of grounding, display evidence of mutual belief;
  - When no grounding evidence is identified it is automatically assumed that there is mutual belief;
  - When the transcript or discourse chunk identifies evidence of differences in sub-states, this is evidence that team members belief states are altering, and the same belief state is not held. Team members therefore hold a mutual belief that they do not all hold the same mutual belief. Belief states altering only become apparent when someone speaks;
  - When the transcript or discourse chunk contains evidence of the same sub-state, this is evidence that team members belief states are not altering and that everyone holds the same mutual belief;
  - A transcript or discourse chunk can show evidence of team members holding mutual belief on some issues, but not all. This is particularly true when using a lengthy discourse chunk;
  - There is evidence of increased mutual belief as a result of the contents of the transcript or discourse chunk.

Step 4.6: Identifying common ground

- In this work common ground is defined as salient information, which is established and shared by two or more people because of their collaboration, interaction and membership to a particular community, society and/or co-presence in a particular environment or context. In teamwork it is important that everyone works towards the same common ground;
- To identify common ground you need to look at the transcript or discourse chunk to identify information that is salient (relevant information) that is being shared and exchanged during an interaction.

Step 4.7: Identifying evidence of growth in mutual understanding and overall growth in mutual understanding

- A transcript or discourse chunk will display evidence of growth in mutual understanding when it includes sub-states 1.1-1.3, 2.1-2.3, 3.1 or 4.1;
- For there to be overall growth in mutual understanding in the transcript or discourse chunk, salient information needs to be shared. It is salient information which establishes common ground. Mutual beliefs are also required.

Step 4.8: Identifying evidence of no growth in mutual understanding

- A transcript or discourse chunk will display evidence of no growth in mutual understanding when it includes sub-states 5.1;
- For there to be evidence of no growth in mutual understanding, common ground and the number of mutual beliefs do not become larger but remain the same.

Using this method will show how mutual understanding evolves in any dialogue-based interaction. Although time consuming to apply when there is a large corpus of data collected from the interactions, benefits can be reaped, especially when collecting data from a project team. Monitoring the evolution of mutual understanding can be beneficial, especially when monitoring progress towards a goal or objective.

The next section examines e-mail data.

5.2.10.2 Monitoring mutual understanding using e-mail data

According to this researcher, e-mail data refers to e-mail messages which are received in their inbox. To apply the researcher's method to monitor the evolution of mutual understanding in e-mail interactions, the contents of the e-mail message need to be analysed. The researcher characterised states to monitor the evolution of e-mail messages which are received as a result of attending a face-to-face interaction. As a pre-requisite to applying this method to e-mail data you may have collected, it is important to bear in mind that those messages need to be related to a face-to-face interaction, and that this method cannot be applied to just any e-mail message that is received.

The same method proposed for monitoring mutual understanding in dialogue based data cannot be used, as dialogue based data was looking for grounding evidence to apply the characterised states and sub-states. This method pays attention to the contents of the message, but not by identifying utterances to demonstrate grounding evidence.

This summary details the steps that are necessary to monitor mutual understanding using e-mail messages.

Step 1: Choosing an interaction

- Select an interaction you wish to use to collect data;
- Ensure there are two or more persons involved that are working together towards one or more shared goal(s);

- Their communication will take place with the whole team face-to-face and this communication will continue using e-mail. You need access to both sets of data. If more persons are involved, you can suggest they use a mailing list address to ensure that everyone who is working together receives a copy of the message;
- Obtain informed consent.

Step 2: Collecting data

- Select appropriate media to collect face-to-face data;
- As a minimum audio recordings are required;
- If other media which capture non-verbal interactions are available to you, and consent is given, video-record the interactions;
- Take hand-written notes.

Step 3: Processing your data

- Transcribe the recordings;
- Produce summaries of the transcriptions, to show what was discussed during the face-to-face meetings;
- Produce a summary outlining all the actions which will take place as a result of that face-to-face meeting.

Step 4: Creating a folder

- To preserve all e-mail messages which are received, you are encouraged to create a new folder, so that e-mail messages that you are using for your analysis remain separate from all other e-mails that you may have;
- To ensure that you can access your e-mail data without accessing your mail, save each message as a '*.txt*' file;
- Each message should also be given a unique identifier.

Step 5: Monitoring mutual understanding

This step is divided into three sub-steps.

Step 5.1: Identifying themes in the e-mail messages

To identify themes in the e-mail messages, you are encouraged to complete this step by creating a visual representation

- As one e-mail message can relate to more than one theme, it is important to identify all the themes which are being discussed in that message;
- This task should be repeated for all e-mail messages;
- By having a visual representation you can see if discussions threads are emerging from the themes you have identified;
- To allow individual messages in each theme to be referred back to, record it's unique identifier, who sent the message and the message date;

- To create the visual representation, start of by identifying the theme on the left hand side of a page, followed by additional messages received associated with a particular theme.

Step 5.2: Identifying messages which show growth in mutual understanding (States 1-6)

- Each e-mail message that you use will show evidence of two states. The first state will show whether that theme's discussion is talking place as a result or not of their previous face-to-face interaction. The second state will show whether or not that theme resulted in forming a discussion thread or not.
- Combination of states are:
  - Categorising your theme as **State 1**: Growth in mutual understanding as the message is sent to the entire group, following a face-to-face discussion. This state focuses on the themes first message that is sent to the team. This message is sent following a face-to-face discussion and **State 2**: Growth in mutual understanding as discussion threads emerge from the theme originally discussed during the face-to-face meeting;
  - Categorising your theme as **State 1**: Growth in mutual understanding as the message is sent to the entire group, following a face-to-face discussion. This state focuses on the themes first message that is sent to the team. This message is sent following a face-to-face discussion and **State 3**: Growth in mutual understanding even when no discussion threads emerge from the original message, which was discussed during the face-to-face meeting. In this theme there is only one message which is characterised by **State 1**;
  - Categorising your theme as **State 4**: Growth in mutual understanding as a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting. This state focuses on the themes first message that is sent to the team. This message is not sent following a face-to-face discussion and **State 5**: Growth in mutual understanding as discussion threads emerge from the original message, but were not following discussions which took place when the team was together at the face-to-face meeting;
  - Categorising your theme as **State 4**: Growth in mutual understanding as a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting. This state focuses on the themes first message that is sent to the team. This message is not sent following a face-to-face discussion and **State 6**: Growth in mutual understanding even when no discussion threads emerge from the original message, but which was not following discussions which took place when the team was together at the face-to-face meeting. In this theme there is only one message which is characterised by **State 4**.

Step 5.3: Identifying messages which show no growth in mutual understanding (State 7)

- The characterisation for **State 7** is: No growth in mutual understanding when actions discussed face-to-face are not followed up by e-mail. In this state the common ground and mutual beliefs established face-to-face do not get larger, they remain the same;
- To identify evidence of this state you are required to refer to the summary which shows all the actions which were identified during the face-to-face meeting. To determine that there was no growth in mutual understanding you are required to examine the themes of the message and the message contents. When a theme did not encompass what was included in the identified action, this

is taken as evidence of state 7, no growth in mutual understanding. In addition, no identification of an expected theme can also display evidence of this state.

Using this method will show how mutual understanding evolves in e-mail messages which are sent following a face-to-face meeting. To monitor the evolution of mutual understanding in e-mail messages, the original message can be used and does not require any processing, unlike data collected from dialogue based interactions, which require transcriptions to be produced before any analysis can take place. Monitoring the evolution of mutual understanding can be beneficial, especially when monitoring progress towards a goal or objective, especially when data is collected from a project team. By monitoring the states allows the project team to be informed of what messages should be sent to support work towards a collaborative task or goal.

The next section looks at transitions between different states of mutual understanding.

5.2.11 Transitions between different states of mutual understanding.

The transitions between different states of mutual understanding for each work package and category other were examined by the researcher to see if there were any patterns emerging.

Focussing in detail at mutual beliefs identified the transitions. This is because according to the re-definition for mutual understanding, mutual beliefs was one of the ingredients for mutual understanding, also creating common ground. Common ground was an ingredient for mutual understanding too.

Therefore to characterise growth in mutual understanding any evidences of mutual belief from face-to-face interactions were used. Evidences of altered beliefs from face-to-face interactions also characterised growth in mutual understanding. However, altered beliefs only become evident when team members do not hold mutual belief, but they are still aware that they hold altered beliefs. That is team members believe there is mutual belief that team members hold altered beliefs. Also, according to the re-definition for mutual understanding, for face-to-face interactions, no growth in mutual understanding is characterised when mutual beliefs and common ground just remain the same, but do not get larger. The analysis for e-mail interactions is different and simply reports if there was evidence of growth in mutual understanding or no growth in mutual understanding.

Appendix X shows in detail for each work package and category other the different mutual beliefs and altered beliefs which characterise growth in mutual understanding and also interactions which characterise no growth in mutual understanding. Presented here is a simple summary showing the transitions between the different states of mutual understanding and identification of any patterns which were observed.

Work package 1 is examined first.

5.2.11.1 Work package 1

Work package 1 was made up of 363 situations. 85% (309/363) situations showed evidence of mutual beliefs. 10% (38/363) showed evidence of altered mutual beliefs. 4% (15/363) showed evidence of growth in mutual understanding. 0.3% (1/363) showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – requesting questions to be asked, asking questions; providing explanations; providing demonstrations; experiencing difficulties; requesting additional time; finding time to interact with the technology which was demonstrated; proposing ideas for the work; informing the team of difficulties met by blind and visually impaired team members; using terms and making requests.

Evidence of altered mutual belief was found in the following situations – asking questions; answering questions; requesting comments; providing comments and making proposals.

Out of the 38 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 47% (18/38) resulted in mutual belief from the altered mutual beliefs. An example of altered belief is shown in table 5.38:

Identifier	Evidence
20.	Evidence of altered mutual belief when Ben asks if it is not necessary to leave the speakers on with Jaws Peter disagrees saying that it is better to leave them on.
21.	Evidence of mutual belief when Peter says it is better to leave the speakers on because sometimes you miss out if you do not. Ben agrees with Peter.

Table 5.38: Illustration of altered mutual beliefs

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, evidence of altered mutual belief was also found when team members held a neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said.

No growth in mutual understanding was observed in one situation when Hazel said that she did not understand what the limits of the user requirements had to be. This was based on discussions taking place with technical team members and Hazel informing the team that she was only doing what she had been asked to do. She also mentioned that she does not now know what the limits of the user requirements needs to be as conflicting information was being shared in the team.

Growth in mutual understanding was achieved by sending messages to the project mailing list. It was interesting to see that the highest number of messages were sent by Hazel from partner 8, followed very closely by Mary, also from partner 8 as they were the leaders for work package 1.

Table 5.39 summarises the situations in work package 1. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	1-5, 7-12, 16-19, 21-39, 41-51, 53-57, 59-62, 64-71, 73-75, 77, 79-81, 83-85, 87-91, 93-97, 99-107, 109-117, 119-124, 126-132, 134, 136-149, 151-154, 156-183, 191-200, 202-204, 206-213, 215-226, 229-254, 257-263, 265, 267-270, 272-277, 279-288, 291-298, 300-318, 320, 333, 335-339, 342-345, 351-362
Altered mutual belief	6, 14-15, 20, 40, 52, 58, 63, 72, 76, 78, 82, 86, 92, 98, 108, 118, 125, 133, 135, 150, 201, 205, 214, 227-228, 255-256, 264, 266, 271, 278, 299, 319, 332, 334, 340-341
No growth in mutual understanding	155
Growth in mutual understanding	184-190, 289-290, 346-350, 362

Table 5.39: Summary of work package 1 by type

Overall, work package 1 shows that mutual belief outnumbered evidence of altered mutual belief and no growth in mutual understanding in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Work package 2 is examined next.

5.2.11.2 Work package 2

Work package 2 was made up of 351 situations. 78% (273/351) situations showed evidence of mutual beliefs. 19% (66/351) showed evidence of altered mutual beliefs. 1% (5/351) showed evidence of growth in mutual understanding. 2% (7/351) showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – requiring clarity; providing explanations; talking about what they were doing; asking questions; proposing ideas for the work; looking at the intentions of the project; providing demonstrations; offering examples and giving feedback.

Evidence of altered mutual belief was found in the following situations – informing everyone of your needs; providing comments; using terms, talking about expectations; asking questions and highlighting areas of confusion.

Out of the 66 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 36% (24/66) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, evidence of altered mutual belief was also found when team members held a neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said, but with fewer situations showing evidence of this.

No growth in mutual understanding was observed in seven situations. One, when Kenneth reported that he was not clear what work package 2's linkage with work package 1 was. Annie said that she thought it was clear in Madrid at the kick-off meeting. Two, when discussions took place on what the tool could or could not do. Three, when Kenneth said that what was being said made the vision less remote than what was already said. Four, when talking about loosing the vision of the project. Five, when Annie said that she thought form filling was difficult based on information provided by Hazel. However, Hazel reported that she had said the opposite of this. Six, when Annie said that they did not know what to do, despite being given assistance on how they could tackle the work. Seven, when Ronnie said that things were not clear to him and an important document was not considered.

Growth in mutual understanding was achieved by sending messages to the project mailing list. It was interesting to see that Annie sent an equal number of messages from partner 2 and Erin from partner 3. As partner 2 was leading this work package the researcher had assumed that the highest number of messages would come from team members working at partner 2.

Table 5.40 summarises the situations in work package 2. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	1-2, 5-6, 10, 12, 14-18, 20-29, 31, 33-41, 43-48, 50-68, 70-72, 74-82, 84, 86-99, 101-116, 118-121, 124, 126-136, 138-141, 143-144, 146, 148-155, 157-161, 163-175, 177-180, 182-185, 188-194, 196-200, 202-204, 206, 211-216, 218-221, 223-224, 226-227, 229-230, 233-235, 237, 239, 242, 244-250, 252-256, 258-262, 264-266, 268-275, 277-279, 283, 286-287, 289-293, 295-296, 298-300, 302-307, 311-318, 320, 322-324, 326, 330-331, 333-334, 336-339, 341-348
Altered mutual belief	4, 7-9, 11, 13, 19, 30, 42, 49, 69, 73, 83, 85, 117, 123, 125, 137, 142, 145, 147, 156, 162, 176, 186-187, 195, 201, 205, 207-210, 217, 222, 225, 228, 231-232, 236, 238, 240-241, 251, 257, 263, 267, 276, 280-281, 285, 288, 294, 297, 301, 308-310, 319, 321, 325, 327-329, 340
No growth in mutual understanding	3, 32, 100, 122, 243, 284, 332
Growth in mutual understanding	181, 335, 349-351

Table 5.40: Summary of work package 2 by type

Overall, work package 2 shows that mutual belief outnumbered evidence of altered mutual belief and no growth in mutual understanding in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Work package 3 is examined next.

5.2.11.3 Work package 3

Work package 3 was made up of 472 situations. 85% (403/472) situations showed evidence of mutual beliefs. 12% (57/472) showed evidence of altered mutual beliefs. 2% (8/472) showed evidence of growth in mutual understanding. 0.8% (4/472) showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – giving comments; asking questions; answering questions; offering examples; talking about development work; checking understanding of what had been said; proposing ideas for the work; making requests; sharing information; seeking agreement; providing demonstrations; identifying you would like to take the next turn to speak; providing explanations and talking about what they were doing.

Evidence of altered mutual belief was found in the following situations – providing comments; offering examples; asking questions; giving suggestions and not talking in English.

Out of the 57 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 35% (20/57) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, evidence of altered mutual belief was also found when team members held a neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said, but with fewer situations showing evidence of this.

No growth in mutual understanding was observed in four situations. One, when Morris said that he had problems understanding what the plug-in could do that traditional screen readers could not. Two, when Ronnie reported that he expected something completely different to what he had been shown. Three, when Paul said that he still did not get what was being said despite being given extra information. Four, when the translator could not see the need to have other packages as MS Word could be used, therefore questioning why another package was necessary.

Growth in mutual understanding was achieved by sending messages to the project mailing list. It was interesting to see that Charles from partner 9 sent the most number of messages who was not the leader of this work package but was from one of the partners who had major involvement in that work package. The next highest number of messages was from Annie who was the leader of this work package from partner 2.

Table 5.41 summarises the situations in work package 3. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	2-6, 8-20, 22-23, 25-28, 30-31, 33, 36-44, 46-50, 52-69, 71-79, 82-89, 91-102, 104-121, 123-153, 155-157, 160-165, 167, 169-183, 185-188, 190-194, 196-206, 208-214, 216-241, 243-248, 250-243, 255-278, 280, 282-286, 289-291, 295, 298-300, 302-305, 307-309, 311-320, 322-328, 330-337, 339, 341-346, 348-349, 351-359, 361-366, 369, 371, 373-376, 378, 380-385, 387-388, 390-409, 411-418, 420, 422-434, 436-438, 441, 443-454, 456-461, 463-468
Altered mutual belief	1, 7, 21, 24, 29, 32, 34-35, 45, 70, 90, 103, 122, 154, 166, 168, 184, 207, 215, 242, 249, 254, 279, 281, 287-288, 292-294, 296, 301, 306, 310, 329, 338, 340, 347, 350, 360, 367-349, 370, 372, 377, 379, 386, 389, 410, 419, 421, 435, 439-440, 442, 455, 462
No growth in mutual understanding	189, 195, 297, 469
Growth in mutual understanding	80-81, 158-159, 321, 470-472

Table 5.41: Summary of work package 3 by type

Overall, work package 3 shows that mutual belief outnumbered evidence of altered mutual belief and no growth in mutual understanding in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Work package 4 is examined next.

5.2.11.4 Work package 4

Work package 4 was made up of 421 situations. 86% (363/421) situations showed evidence of mutual beliefs. 11 % (48/421) showed evidence of altered mutual beliefs. 2% (9/421) showed evidence of growth in mutual understanding. 0.2 % (1/421) showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – giving comments; talking about what they had done; seeking agreement; proposing ideas for the work; offering examples; using terms; asking questions; answering questions; talking about development work; identifying you would like to take the next turn to speak; checking understanding of what had been said; making requests; bringing to attention important issues; sharing information and providing demonstrations.

Evidence of altered mutual belief was found in the following situations – providing comments; making proposals; reactions to ideas proposed; asking questions; answering questions; contributing to the work; using terms and seeking agreement.

Out of the 48 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 35% (17/48) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, evidence of altered mutual belief was also found when team members held a

neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said, but with fewer situations showing evidence of this.

No growth in mutual understanding was observed in one situation when Kenneth said that they were not moving beyond what screen reader technology will do and what screen reader technology will be doing in the very near future.

Growth in mutual understanding was achieved by sending messages to the project mailing list. It was interesting to see that there were an identical number of messages sent by Adam from partner 5 and Mary from partner 8. However, what was interesting is that Mary sent information which could be used for this work package despite not being involved in it.

Table 5.42 summarises the situations in work package 4. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	2-21, 24-38; 40-45, 47-52, 54, 57-65, 67-69, 71-76, 78-90, 92-103, 105, 107-118, 120, 122-125, 127, 129-135, 137-143, 145, 147-165, 167-168, 170-181, 183-185, 187-206, 208-215, 217-218, 220-231, 233-260, 263-266, 368-275, 277-290, 292-294, 296-301, 303-306, 308-312, 314-320, 322-325, 327-328, 330, 332-336, 338-346, 348, 350-356, 358-364, 366-373, 375-376, 378-405, 410-412, 414-416, 418-419
Altered mutual belief	1, 22-23, 39, 53, 55-56, 66, 70, 77, 91, 104, 106, 119, 121, 126, 128, 136, 144, 146, 166, 169, 182, 186, 207, 216, 219, 232, 267, 276, 291, 295, 302, 313, 321, 326, 329, 331, 337, 347, 349, 357, 365, 374, 377, 413, 417
No growth in mutual understanding	307
Growth in mutual understanding	46, 261-262, 406-409, 420-421

Table 5.42: Summary of work package 4 situations by type

Overall, work package 4 shows that mutual belief outnumbered evidence of altered mutual belief and no growth in mutual understanding in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Work package 5 is examined next.

5.2.11.5 Work package 5

Work package 5 was made up of 146 situations. 87% (127/146) situations showed evidence of mutual beliefs. 9% (13/146) showed evidence of altered mutual beliefs. 4% (6/146) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – giving comments; sharing information; asking questions; making requests; proposing ideas for the work; answering questions; identifying you would like to take the next turn to speak; talking about what they had done; checking involvement of partners in that work package; bringing up matters of concern and making corrections.

Evidence of altered mutual belief was found in the following situations – providing comments; asking questions; making requests; taking the next turn to speak; answering questions and making incorrect references.

Out of the 13 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 46% (6/13) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, there was only one evidence of altered mutual belief found when team members held a neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Mary from partner 8 sent the most messages to the team. This is because partner 8 was the leader of this work package. In this work package the only other team member sending messages was Morris from partner 6. Partner 6 was also one of the partners with major involvement in this work package.

Table 5.43 summarises the situations in work package 5. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	1, 3-17, 19-21, 23-30, 32-33, 35-43, 46-55, 57-62, 64-87, 89-117, 119-128, 130-135, 137, 139-141
Altered mutual belief	2, 18, 22, 31, 34, 44-45, 63, 88, 118, 129, 136, 138
No growth in mutual understanding	
Growth in mutual understanding	56, 142-146

Table 5.43: Summary of work package 5 by type

Overall, work package 5 shows that mutual belief outnumbered evidence of altered mutual belief in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Work package 6 is examined next.

5.2.11.6 Work package 6

Work package 6 was made up of 307 situations. 83% (255/307) situations showed evidence of mutual beliefs. 13% (40/307) showed evidence of altered mutual beliefs. 3% (8/307) showed evidence of growth in mutual understanding. 1% (4/307) showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – sharing information; asking questions; using terms; making requests; responding to requests; proposing ideas for the work; providing summaries; talking about what they had done; giving comments; checking information; answering questions and identifying you would like to take the next turn to speak.

Evidence of altered mutual belief was found in the following situations – asking questions; providing comments; using terms incorrectly; making proposals and having different needs.

Out of the 40 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 48% (19/40) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, evidence of altered mutual belief was found when team members held a

neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said.

There was evidence of no growth in mutual understanding in four situations during the face-to-face interactions. One, when looking at the discussions taking place regarding Ronnie sending comments by the 28th of March. Two, when Fabian said that they were going to tell the team on the dissemination that they had made. The team had already requested that they are informed before and not after. Three, when looking at discussions involving the team being informed on when items outside of the project are going to be discussed. Four, when looking at the need to show information to the team members before it is shown outside of the project team and not after.

Growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Fabian from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package. The next highest number of messages came from Jonathan and Jack, also from partner 1.

Table 5.44 summarises the situations in work package 6. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	2-3, 5-7, 9-13, 16, 18-21, 23, 25-40, 42-47, 49-63, 65-71, 73-74, 76-77, 79, 81-84, 86-95, 97, 100-107, 109-112, 114-125, 127, 129-131, 133-134, 137-140, 142-161, 163-166, 168-181, 183-194, 197-199, 201-203, 205, 207-212, 214-222, 225-226, 228-230, 232-241, 243-254, 257, 259-263, 266-270, 272-276, 278-280, 282-303
Altered mutual belief	1, 4, 8, 17, 22, 24, 41, 48, 64, 72, 75, 78, 80, 85, 96, 98-99, 108, 113, 126, 132, 135-136, 141, 162, 167, 182, 200, 204, 206, 213, 223-224, 231, 242, 255-256, 277, 281, 304
No growth in mutual understanding	128, 227, 258, 271
Growth in mutual understanding	14-15, 195-196, 264-265, 306-307

Table 5.44: Summary of work package 6 by type

Overall, work package 6 shows that mutual belief outnumbered evidence of altered mutual belief and no growth in mutual understanding in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Work package 7 is examined next.

5.2.11.7 Work package 7

Unlike work packages 1-6, this work package is made up of 31 themes with a total of 403 situations. Each theme is examined separately and FTP site is the first.

5.2.11.7.1 FTP site

Theme FTP site was made up of 26 situations. 62% (16/26) situations showed evidence of mutual beliefs. 19% (5/26) showed evidence of altered mutual beliefs. 19% (5/26) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – providing examples; communicating with the team; giving comments; proposing ideas for the work; asking questions and answering questions.

Evidence of altered mutual belief was found in the following situations – sharing information; providing comments; asking questions and answering questions.

Out of the five situations which showed evidence of altered mutual beliefs, it was interesting to observe that 80% (4/5) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members. However, evidence of altered mutual belief was found when team members held a neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack and Fabian from partner 1 sent an identical number of messages to the team, which were also the highest number of messages sent. This is because partner 1 was the leader of this work package and a decision was made that documents would be sent to them and they would send an e-mail to the team to inform them that the site had been updated. The next highest number of messages came from Mary, from partner 8 informing the team when documents were placed onto the FTP site.

Table 5.45 summarises the situations in work package 7 looking at theme FTP site. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	1-3, 5-6, 8, 10, 12-13, 15, 17-22
Altered mutual belief	4, 7, 9, 11, 16
No growth in mutual understanding	
Growth in mutual understanding	14, 23-26

Table 5.45: Summary of work package 7 - theme FTP site by type

Overall, theme FTP site shows that mutual belief outnumbered evidence of altered mutual belief in face-to-face interactions. There was evidence of growth in mutual understanding through e-mail messages sent to the project team.

Theme project logo is examined next.

5.2.11.7.2 Project logo

Theme project logo was made up of six situations. 83% (5/6) situations showed evidence of mutual beliefs. 17% (1/6) showed evidence of altered mutual beliefs. No situations showed evidence of growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – communicating with the team; giving comments and providing explanations and support.

Evidence of altered mutual belief was found in the following situation – providing comments.

Out of the one situation which showed evidence of altered mutual beliefs, it was interesting to observe that there was no mutual belief which resulted from the altered mutual beliefs. However, it was interesting to note that this situation was to do with a disagreement.

Table 5.46 summarises the situations in work package 7 looking at theme project logo. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	27, 29-32
Altered mutual belief	28
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.46: Summary of work package 7 - theme Project logo by type

Overall, theme Project logo shows that mutual belief outnumbered evidence of altered mutual belief in face-to-face interactions. There was no evidence of growth in mutual understanding in face-to-face interactions and through e-mail messages sent to the project team.

Theme reminder of roles in the project is examined next.

5.2.11.7.3 Reminder of roles in the project

Theme reminder of roles in the project was made up of only one situation showing evidence of assumed mutual belief as there was no evidence to suggest otherwise when the team was reminded of the co-ordinater and technical co-ordinators role.

Evidence of mutual belief was found in the following situation – reminding the team.

Table 5.47 summarises the situations in work package 7 looking at theme reminder of roles in the project. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	33
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.47: Summary of work package 7 - theme Reminder of roles in the project by type

Overall, theme Reminder of roles in the project shows that there was only evidence of mutual belief. There was no evidence of altered mutual belief, no growth in mutual understanding in face-to- face interactions and growth in mutual understanding through e-mail messages sent to the project team and no growth in mutual understanding through e-mail messages.

Theme communication in the project is examined next.

5.2.11.7.4 Communication amongst the team

Theme communication amongst the team was made up of four situations. 75% (3/4) situations showed evidence of mutual beliefs. 25% (1/4) showed evidence of altered mutual beliefs. No situations showed evidence of growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – communicating with the team and giving comments.

Evidence of altered mutual belief was found in the following situation – providing comments.

Out of the one situation which showed evidence of altered mutual beliefs, it was interesting to observe that there was mutual belief which resulted from the altered mutual beliefs. It was interesting to observe that the situation which resulted in altered beliefs was to do with disagreements.

Table 5.48 summarises the situations in work package 7 looking at theme communication amongst the team. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	34, 36-37
Altered mutual belief	35
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.48: Summary of work package 7 – Communication amongst the team by type

Overall, theme communication amongst the team shows that mutual belief outnumbered evidence of altered mutual belief in face-to-face interactions. There was no evidence of growth in mutual understanding through e-mail messages sent to the project team and no growth in mutual understanding through e-mail messages.

Theme project website address is examined next.

5.2.11.7.5 Project website address

Theme project website address was made up of three situations. 67% (2/3) situations showed evidence of mutual beliefs. 33% (1/3) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual beliefs and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – asking questions and seeking agreement.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. Only Fabian from partner 1 sent a message belonging to this theme.

Table 5.49 summarises the situations in work package 7 looking at theme project website address. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	38-39
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	40

Table 5.49: Summary of work package 7 - theme Project website address by type

Overall, theme Project website address shows that mutual belief outnumbered evidence of growth in mutual understanding. There was no evidence of altered mutual beliefs and no growth in mutual understanding through e-mail messages.

Theme project webpage is examined next.

5.2.11.7.6 Project webpage

Theme project webpage was made up of three situations. 33% (1/3) situations showed evidence of mutual beliefs. 67% (2/3) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual beliefs and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation – sharing information.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. Jack sent an identical number of messages and Fabian from partner 1, so did Mary from partner 8. Although partner 1 was the leader of this work package and this theme, Mary sent a message to the team following a question which was asked in one of the messages sent by partner 1.

Table 5.50 summarises the situations in work package 7 looking at theme project webpage. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	41
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	42-43

Table 5.50: Summary of work package 7- theme Project webpage by type

Overall, theme Project webpage shows that growth in mutual understanding outnumbered evidence of mutual belief. There was no evidence of altered mutual beliefs and no growth in mutual understanding through e-mail messages.

Theme project mailing list address is examined next.

5.2.11.7.7 Project mailing list address

Theme project mailing list addresses was made up of 18 situations. 89% (16/18) situations showed evidence of mutual beliefs. 11% (2/18) showed evidence of altered mutual beliefs. No situations showed evidence of growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – asking questions; answering questions; proposing ideas; repeating information and sharing information with the team.

Evidence of altered mutual belief was found in the following situations – making requests and asking questions.

Out of the two situations which showed evidence of altered mutual beliefs, it was interesting to observe that 100% (2/2) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the situations were always to do with disagreements with other team members.

Table 5.51 summarises the situations in work package 7 looking at theme project mailing list address. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	44-49, 51-55, 57-61
Altered mutual belief	50, 56
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.51: Summary of work package 7 - theme project mailing list address by type

Overall, theme project mailing list address shows that mutual belief outnumbered evidence of altered mutual belief. There was no evidence of growth in mutual understanding and no growth in mutual understanding through e-mail messages.

Theme reporting is examined next.

5.2.11.7.8 Reporting

Theme reporting was made up of nine situations. 33% (3/9) situations showed evidence of mutual beliefs. 56% (5/9) showed evidence of altered mutual beliefs. 11% (1/9) showed evidence of no growth in mutual understanding. No situations showed evidence of growth in mutual understanding.

Evidence of mutual belief was found in the following situation – proposing ideas.

Evidence of altered mutual belief was found in the following situations – proposing ideas and giving comments.

Out of the five situations which showed evidence of altered mutual beliefs, it was interesting to observe that 20% (1/5) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found were to do with disagreements with other team members.

Table 5.52 summarises the situations in work package 7 looking at theme reporting. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	62, 66, 70
Altered mutual belief	63-65, 67-68
No growth in mutual understanding	69
Growth in mutual understanding	

Table 5.52: Summary of work package 7 - theme reporting by type

Overall, theme reporting shows that altered mutual beliefs outnumbered evidence of mutual belief and no growth in mutual understanding. There was no evidence of growth in mutual understanding through e-mail messages.

Theme review is examined next.

5.2.11.7.9 Review

Theme reporting was made up of 61 situations. 80% (49/61) situations showed evidence of mutual beliefs. 13% (8/61) showed evidence of altered mutual beliefs. 7% (4/61) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information; giving comments; raising concerns; asking questions; giving answers and indicating that you would like to take the next turn to speak.

Evidence of altered mutual belief was found in the following situations – giving comments; describing what was being shown; asking questions; sharing information and highlighting areas of concern.

Out of the eight situations which showed evidence of altered mutual beliefs, it was interesting to observe that 63% (5/8) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found were all to do with disagreements with other team members.

Table 5.53 summarises the situations in work package 7 looking at theme review. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	71-77, 79, 82-85, 87-91, 93-97, 99, 102-103, 105-118, 120-122, 124-130
Altered mutual belief	78, 80-81, 92, 98, 119, 123
No growth in mutual understanding	
Growth in mutual understanding	86, 100-101, 104, 131

Table 5.53: Summary of work package 7- theme review by type

Overall, theme review shows that mutual beliefs outnumbered evidence of altered mutual belief and no growth in mutual understanding. There was no evidence of no growth in mutual understanding through e-mail messages.

Theme special report for the review is examined next.

5.2.11.7.10 Special report for the review

Theme Special report for the review was made up of nine situations. 56% (5/9) situations showed evidence of mutual beliefs. 11% (1/9) showed evidence of altered mutual beliefs. 33% (3/9) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information and making a request.

Evidence of altered mutual belief was found in the following situation – giving comments.

Out of the one situation which showed evidence of altered mutual beliefs, it was interesting to observe that 100% (1/1) resulted in mutual belief from the altered belief.

When observing mutual beliefs it was interesting to see that the situation which was found was to do with disagreement with another team member.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package. Also, Hazel, Annie and Fabian all sent one message each on this theme.

Table 5.54 summarises the situations in work package 7 looking at theme special report for the review. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	133-136
Altered mutual belief	137
No growth in mutual understanding	
Growth in mutual understanding	132, 139-140

Table 5.54: Summary of work package 7 - theme special report for the review by type

Overall, theme special report for the review shows that mutual beliefs outnumbered evidence of altered mutual belief and growth in mutual understanding. There was no evidence of no growth in mutual understanding through e-mail messages.

Theme 1st quarterly report is examined next.

5.2.11.7.11 1st quarterly report

Theme 1st quarterly report was made up of two situations. 50% (1/2) situations showed evidence of mutual beliefs. 50% (1/2) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual beliefs and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– making a request.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package.

Table 5.55 summarises the situations in work package 7 looking at theme 1st quarterly report. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	141
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	142

Table 5.55: Summary of work package 7 - theme 1st quarterly report by type

Overall, theme 1st quarterly report shows that there were an equal number of situations showing evidence of mutual belief and growth in mutual understanding. There was no evidence of no altered mutual beliefs and no growth in mutual understanding through e-mail messages.

Theme 2nd quarterly report is examined next.

5.2.11.7.12 2nd quarterly report

Theme 2nd quarterly report was made up of two situations. 50% (1/2) situations showed evidence of mutual beliefs. 50% (1/2) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual beliefs and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– sharing information.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package. Hazel from partner 8 sent the next highest number of messages related to this theme.

Table 5.56 summarises the situations in work package 7 looking at theme 2nd quarterly report. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	144
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	143

Table 5.56: Summary of work package 7 - theme 2nd quarterly report by type

Overall, theme 2nd quarterly report shows that there were an equal number of situations showing evidence of mutual belief and growth in mutual understanding. There was no evidence of no altered mutual beliefs and no growth in mutual understanding through e-mail messages.

Theme 3rd quarterly report is examined next.

5.2.11.7.13 3rd quarterly report

Theme 3rd quarterly report was made up of five situations. 60% (3/5) situations showed evidence of mutual beliefs. 20% (1/5) showed evidence of altered mutual belief. 20% (1/5) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information and providing comments.

Evidence of altered mutual belief was found in the following situation – sharing information.

Out of the one situation which showed evidence of altered mutual beliefs, it was interesting to observe that 100% (1/1) resulted in mutual belief from altered mutual beliefs.

When observing altered mutual belief it was interesting to see that this situation was to do with a disagreement with another team member.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package. The next highest number of messages came from Fabian, also from partner 1, who was providing assistance to Jack.

Table 5.57 summarises the situations in work package 7 looking at theme 3rd quarterly report. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	146, 148-149
Altered mutual belief	145
No growth in mutual understanding	
Growth in mutual understanding	147

Table 5.57: Summary of work package 7 - theme 3rd quarterly report by type

Overall, theme 3rd quarterly report shows that the number of situations for mutual belief outweighed the number of situations for altered mutual beliefs and growth in mutual understanding. There was no evidence of no growth in mutual understanding.

Theme 4th quarterly report is examined next.

5.2.11.7.14 4th quarterly report

Theme 4th quarterly report was made up of three situations. 33% (1/3) situations showed evidence of mutual beliefs. 67% (2/3) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– making a request.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package. The next highest number of messages came from Fabian, also from partner 1, who was providing assistance to Jack.

Table 5.58 summarises the situations in work package 7 looking at theme 4th quarterly report. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	150
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	151-152

Table 5.58: Summary of work package 7- theme 4th quarterly report by type

Overall, theme 4th quarterly shows that the number of situations for growth in mutual understanding outweighed the number of situations for mutual belief. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme annex number 1 is examined next.

5.2.11.7.15 Annex number 1

Theme annex 1 was made up of 16 situations. 88% (14/16) situations showed evidence of mutual beliefs. 13% (2/16) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information and proposing ideas.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack from partner 1 sent the most messages to the team. This is because partner 1 was the leader of this work package. Fabian, also from partner 1, who was providing assistance to Jack and Hazel from partner 8 sent messages on this theme too.

Table 5.59 summarises the situations in work package 7 looking at theme annex number 1. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	154-166, 168
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	153, 167

Table 5.59: Summary of work package 7 - theme annex number 1 by type

Overall, theme annex number 1 shows that the number of situations for mutual belief outweighed the number of situations for growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme annex number 2 is examined next.

5.2.11.7.16 Annex number 2

Theme annex number 2 was made up of six situations. 83% (5/6) situations showed evidence of mutual beliefs. 17% (1/6) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information and giving comments.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.60 summarises the situations in work package 7 looking at theme annex number 2. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	170-174
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	169

Table 5.60: Summary of work package 7 - theme annex number 2 by type

Overall, theme annex number 2 shows that the number of situations for mutual belief outweighed the number of situations for growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme CPF is examined next.

5.2.11.7.17 CPF

Theme CPF was made up of seven situations. 86% (6/7) situations showed evidence of mutual beliefs. 14% (1/7) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information; making requests and informing of intended plans.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.61 summarises the situations in work package 7 looking at theme CPF. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	176-181
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	175

Table 5.61: Summary of work package 7 - CPF by type

Overall, theme CPF shows that the number of situations for mutual belief outweighed the number of situations for growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme advance payment is examined next.

5.2.11.7.18 Advance payment

Theme advance payment was made up of eight situations. 88% (7/8) situations showed evidence of mutual beliefs. 12% (1/8) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation – sharing information.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.62 summarises the situations in work package 7 looking at theme advance payment by type. It is important to note that the last type, growth in mutual understanding is for e-mail interactions. The top three types are for face-to-face interactions.

Type	Identifier
Mutual belief	182-188
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	189

Table 5.62: Summary of work package 7- theme advance payment by type

Overall, theme advance payment shows that the number of situations for mutual belief outweighed the number of situations for growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme cost statements is examined next.

5.2.11.7.19 Cost statements

Theme cost statement was made up of 24 situations. 71% (17/24) situations showed evidence of mutual beliefs. 21% (5/24) showed evidence of altered mutual beliefs. 8% (2/24) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations– sharing information; giving comments and asking questions.

Evidence of altered mutual belief was found in the following situations – mentioning some information; sharing information; giving comments and asking questions.

Out of the five situations which showed evidence of altered mutual beliefs, it was interesting to observe that 20% (1/5) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the situations which were found displaying evidence of altered mutual beliefs were to do with disagreements with other team members.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.63 summarises the situations in work package 7 looking at theme cost statements. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	190-197, 199-200, 202-204, 206-208, 210
Altered mutual belief	198, 201, 205, 209, 211
No growth in mutual understanding	
Growth in mutual understanding	212-213

Table 5.63: Summary of work package 7 - theme cost statements by type

Overall, theme cost statements shows that the number of situations for mutual belief outweighed the number of situations for altered mutual belief and growth in mutual understanding. There was no evidence of no growth in mutual understanding.

Theme bank guarantee is examined next.

5.2.11.7.20 Bank guarantee

Theme bank guarantee was made up of two situations. 100% (2/2) situations showed evidence of mutual beliefs. No situations showed evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– sharing information.

Table 5.64 summarises the situations in work package 7 looking at theme bank guarantee. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	214-215
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.64: Summary of work package 7 - theme bank guarantees by type

Overall, theme bank guarantees shows that there was only evidence of mutual belief. There was no evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Theme change of name for partner 8 is examined next.

5.2.11.7.21 Change of name for partner 8

Theme change of name for partner 8 was made up of five situations. 80% (4/5) situations showed evidence of mutual beliefs. 20% (1/5) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – sharing information and giving comments.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.65 summarises the situations in work package 7 looking at theme change of name for partner 8. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	217-220
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	216

Table 5.65: Summary of work package 7 - theme change of name for partner 8 by type

Overall, theme change of name for partner 8 shows that evidence of mutual belief outweighed the evidence for growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme change of name for partner 1 is examined next.

5.2.11.7.22 Change of name for partner 1

Theme change of name for partner 1 was made up of six situations. 83% (5/6) situations showed evidence of mutual beliefs. 17% (1/6) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– sharing information.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that Jack sent the highest number of messages to the team from partner 1 on this theme. This is because partner 1 was the leader of this work package. Also, Fabian, working at partner 1 sent the next highest number of messages to the team. This was not a surprising observation as well.

Table 5.66 summarises the situations in work package 7 looking at theme change of name for partner 1. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	221-222, 224-226
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	223

Table 5.66: Summary of work package 7 situations for theme change of name for partner 1 by type

Overall, theme change of name for partner 1 shows that evidence of mutual belief outweighed the evidence for growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme change of name for partner 3 is examined next.

5.2.11.7.23 Change of name for partner 3

Theme change of name for partner 3 was made up of two situations. 100% (2/2) situations showed evidence of mutual beliefs. No situations showed evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– sharing information.

Table 5.67 summarises the situations in work package 7 looking at theme change of name for partner 3. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	227-228
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.67: Summary of work package 7 - theme change of name for partner 3 by type

Overall, theme change of name for partner 3 shows that there was only evidence of mutual belief. There was no evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Theme no change in the contract is examined next.

5.2.11.7.24 No change in the contract

Theme no change in the contract was made up of only one situation. 100% (1/1) situation showed evidence of growth in mutual understanding. No situations showed evidence of mutual belief, altered mutual belief and no growth in mutual understanding.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.68 summarises the situations in work package 7 looking at theme no changes in the contract. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	229

Table 5.68: Summary of work package 7 - theme no change in the contract by type

Overall, theme no change in the contract shows that there was only evidence of growth in mutual understanding. There was no evidence of mutual belief, altered mutual belief and no growth in mutual understanding.

Theme change in the project's start date is examined next.

5.2.11.7.25 Change in the project's start date

Theme change in the project's start date was made up of two situations. 100% (2/2) situations showed evidence of mutual belief. No situations showed evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation– sharing information.

Table 5.69 summarises the situations in work package 7 looking at theme change in the project's start date. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	230-231
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.69: Summary of work package 7 - theme change in the project's start date by type

Overall, theme change in the project's start date shows that there was only evidence of mutual belief. There was no evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Theme changing involvement in the work package is examined next.

5.2.11.7.26 Change in consumables

Theme change in consumables was made up of five situations. 100% (5/5) situations showed evidence of mutual belief. No situations showed evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – sharing information; making proposals and talking about actions.

Table 5.70 summarises the situations in work package 7 looking at theme change in consumables. It is important that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	234-238
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	

Table 5.70: Summary of work package 7 - theme change in consumables by type

Overall, theme change in consumables shows that there was only evidence of mutual belief. There was no evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Theme signing the amendment is examined next.

5.2.11.7.27 Signing the amendment

Theme signing the amendment was made up of 14 situations. 86% (12/14) situation showed evidence of mutual belief. 7% (1/14) showed evidence of altered mutual belief. 7% (1/14) showed evidence of growth in mutual understanding. No situations showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations – giving comments; identifying that you would like to take the next turn to speak and sharing information.

Evidence of altered mutual belief was found in the following situation – performing checks.

Out of the one situation which showed evidence of altered mutual beliefs, it was interesting to observe that 100% (1/1) resulted in mutual belief from the altered mutual belief.

When observing altered mutual beliefs it was interesting to see that this situation was to do with disagreements with other team members.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.71 summarises the situations in work package 7 looking at theme signing the amendment. It is important that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	240-251
Altered mutual belief	239
No growth in mutual understanding	
Growth in mutual understanding	252

Table 5.71: Summary of work package 7 - theme signing the amendment by type

Overall, theme signing the amendment shows that evidence of mutual belief outweighed evidence of altered mutual belief and growth in mutual understanding. There was no evidence of no growth in mutual understanding.

Theme extension for the project is examined next.

5.2.11.7.28 Extension for the project

Theme extension for the project was made up of six situations. 67% (4/6) situation showed evidence of mutual belief. 33% (2/6) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation - sharing information.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.72 summarises the situations in work package 7 looking at theme extension for the project. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	253-254, 256-257
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	255, 258

Table 5.72: Summary of work package 7 - theme extension for the project by type

Overall, theme extension for the project shows that evidence of mutual belief outweighed evidence of growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme partner 1 signing amendments is examined next.

5.2.11.7.29 Partner 1 signing amendments

Theme partner 1 signing amendments was made up of three situations. 67% (2/3) situation showed evidence of mutual belief. 33% (1/3) showed evidence of growth in mutual understanding. No situations showed evidence of altered mutual belief and no growth in mutual understanding.

Evidence of mutual belief was found in the following situation - sharing information.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.73 summarises the situations in work package 7 looking at theme partner 1 signing amendments. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	259-260
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	261

Table 5.73: Summary of work package 7- theme partner 1 signing amendments by type

Overall, theme partner 1 signing amendment's shows that evidence of mutual belief outweighed evidence of growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

Theme next meeting date is examined next.

5.2.11.7.30 Next meeting

Theme next meeting was made up of 130 situations. 63% (82/130) situations showed evidence of mutual belief. 28% (37/130) showed evidence of altered mutual belief. 8% (10/130) showed evidence of growth in mutual understanding. 0.8% (1/130) showed evidence of no growth in mutual understanding.

Evidence of mutual belief was found in the following situations - sharing information; making proposals; asking questions; answering questions; deciding on action to take; giving comments and making requests.

Evidence of altered mutual belief was found in the following situations – asking questions; answering questions; making proposals; giving comments; sharing information; seeking agreement and referring to information incorrectly.

Out of the 37 situations which showed evidence of altered mutual beliefs, it was interesting to observe that 35% (13/37) resulted in mutual beliefs from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the highest number of situations which were found displaying evidence of altered mutual beliefs which were to do with disagreements with other team members. However, evidence of altered mutual belief was also found when team members held a neutral position to something said by another team member, that is neither agreeing nor disagreeing with what they said, but with fewer situations showing evidence of this.

Growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. It was not surprising to see that only Jack from partner 1 sent messages to the team on this theme. This is because partner 1 was the leader of this work package.

Table 5.74 summarises the situations in work package 7 looking at theme next meeting. It is important that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	262-264, 266-269, 273-275, 278-282, 284-285, 287-288, 291, 293-294, 296-297, 299-304, 306, 308-311, 313, 315, 318, 321-326, 328-332, 334-336, 340-341, 343-347, 349, 351, 353, 357-362, 364-366, 369-373, 375-376, 378, 380-381, 684-389
Altered mutual belief	265, 276-277, 283, 286, 289-290, 292, 295, 298, 305, 307, 312, 314, 316-317, 319-320, 327, 333, 339, 342, 348, 350, 352, 354, 356, 363, 367-368, 374, 377, 379, 382-383
No growth in mutual understanding	355
Growth in mutual understanding	270-272, 337-338, 390-391

Table 5.74: Summary of work package 7- theme next meeting by type

Overall, theme next meeting shows that evidence of mutual belief outweighed evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding.

Theme meeting minutes is examined next.

5.2.11.7.31 Meeting minutes

Theme meeting minutes was made up of 12 situations. 58% (7/12) situations showed evidence of mutual belief. 25% (3/12) showed evidence of altered mutual belief. 17 % (2/12) showed evidence of growth in mutual understanding. No evidence of no growth in mutual understanding was found.

Evidence of mutual belief was found in the following situations - sharing information; making proposals; asking questions; answering questions and giving comments.

Evidence of altered mutual belief was found in the following situations – making proposals and giving comments.

Out of the three situations which showed evidence of altered mutual beliefs, it was interesting to observe that 67% (2/3) resulted in mutual belief from the altered mutual beliefs.

When observing altered mutual beliefs it was interesting to see that the situations were all to do with disagreements with other team members.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. Jack from partner 1 and Annie from partner 2 sent an identical number of messages to the team on this theme.

Table 5.75 summarises the situations in work package 7 looking at theme meeting minutes. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	392-395, 397, 400-401
Altered mutual belief	396, 399, 402
No growth in mutual understanding	
Growth in mutual understanding	398, 403

Table 5.75: Summary of work package 7 - theme meeting minutes by type

Overall, theme meeting minutes shows that evidence of mutual belief outweighed evidence of altered mutual belief and growth in mutual understanding. There was no evidence of no growth in mutual understanding.

The next section examines category other.

5.2.11.8 Other

Like work package 7, category other is made up of two themes with a total of eight situations and each of the themes is examined separately. FTP site is examined first.

5.2.11.8.1 Availability

Theme availability was made up of three situations. 100% (3/3) situations showed evidence of growth in mutual understanding. No evidence of mutual belief, altered mutual belief and no growth in mutual understanding was found.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. The following team members all sent one message each on this theme – Hazel, someone from partner 4, Mary, Jack, Morris and Ronnie.

Table 5.76 summarises the situations in category other looking at theme availability. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	1-3

Table 5.76: Summary of category other - theme availability by type

Overall, theme availability shows that there was only evidence of growth in mutual understanding. There was no evidence of mutual belief, altered mutual belief and no growth in mutual understanding.

The next section examines theme glossary.

5.2.11.8.2 Glossary

Theme glossary was made up of five situations. 60% (3/5) situations showed evidence of mutual belief. 40% (2/5) showed evidence of growth in mutual understanding. No evidence of mutual belief, altered mutual belief and no growth in mutual understanding was found.

Evidence of mutual belief was found in the following situations - giving comments and providing explanations.

There was no evidence of no growth in mutual understanding during the face-to-face interactions. However, growth in mutual understanding was observed and that was achieved by sending messages to the project mailing list. Only Charles from partner 9 contributed to the glossary and sent revised versions. However, there was also evidence of Fabian, from partner 1 informing the team that the project glossary was placed onto the project server.

Table 5.77 summarises the situations in category other looking at theme glossary. It is important to note that the top three types are for face-to-face interactions and the last one is for e-mail interactions.

Type	Identifier
Mutual belief	5-7
Altered mutual belief	
No growth in mutual understanding	
Growth in mutual understanding	4, 8

Table 5.77: Summary of category other - theme glossary by type

Overall, theme glossary shows that evidence of mutual belief outweighed evidence of growth in mutual understanding. There was no evidence of altered mutual belief and no growth in mutual understanding.

The next section provides a summary of each of the work packages and category other

5.2.11.9 Summary

The transitions reported in this section show that for nearly all work packages except for work package 7 and category other the number of mutual beliefs held far outweighed evidence of altered mutual belief, growth in mutual understanding and no growth in mutual understanding situations. However, exceptions to this observation were as follows for work package 7 in the following themes. Project webpage, no change in the contract and the 4th quarterly report which had the highest evidences found for growth in mutual understanding. Reporting had the highest evidence found for altered mutual beliefs. 1st quarterly report and 2nd quarterly report had an equal number of situations for mutual belief and growth in mutual understanding.

The following themes only displayed evidence of mutual beliefs in work package 7 – reminder of roles in the project, change of name for partner 3, change in the project's start date and bank guarantee.

The following themes only displayed evidence of altered mutual beliefs alongside mutual belief in work package 7 – project logo, communication amongst the team, project mailing list address and reporting.

The following themes only displayed evidence of growth in mutual understanding alongside mutual belief in work package 7 – project website address, project webpage, change of name for partner 1, extension

for the project, partner 1 signing amendments, 4th quarterly report, annex number 1, annex number 2, CPF, advance payments and change of name for partner 8.

Also, for all work packages and category other there was growth in mutual understanding in e-mail interactions. This shows that mutual understanding evolved from the face-to-face meetings and continued through e-mail interactions. This is important, especially when the team in question only meets face-to-face once every 3-months. However, in work package 7 the following themes did not result in growth in mutual understanding in e-mail interactions – project logo, reminder of roles in the project, communication amongst the team, change of name for partner 3, change in the project's start date, project mailing list address, reporting and bank guarantee.

No growth in mutual understanding was found in work packages 1, 2, 3, 4, 6 and in themes reporting and next meeting date in work package 7. It was surprising that situations showing no growth in mutual understanding were not found in work package 5 as well.

It was interesting to observe that work packages 1, 2, 3, 4, 5 and 6 had evidence of altered mutual belief and growth in mutual understanding too. So did the following themes from work package 7 – FTP site, signing the amendment, next meeting, special report for the review, 3rd quarterly report and cost statements.

Another interesting observation was that from a total of seven work packages and category other (work package 7 and category other combined together had 33 themes) 17 situations resulted in reaching mutual belief and finding evidence of altered mutual belief. This was a significant finding in terms of looking at a team showing that although team members are aware that they do not hold the same belief, team members most often following some form of disagreement can still often reach mutual belief. Only one situation reached no mutual belief after finding evidence of altered mutual belief.

The next section looks at qualitative differences in types of understanding.

5.2.1.2 Qualitative differences in types of understanding.

Looking at the results presented in section 5.2 monitoring the evolution of mutual understanding in work packages 1 –7, and category other shows that there were qualitative differences in the types of understanding. However, what is common across all of the work packages is that they each contain topics which require agreement. As figure 5.1 has shown, receiving agreement is by far the highest type of evidence which is received during a face-to-face interaction. However, as already seen team members do not always agree with one another and this leads to altered beliefs.

Close examination of all discourse chunks which have been identified from the transcripts produced from the face-to-face meeting, and textual chunks, following on with the activities discussed during the face-to-face meeting through e-mail show that there are different topics of agreement being reached in the different themes. In order to address this point, this section looks at examining topics of agreement for a complex design problem, paying close attention to work packages 2, 3 and 4. Immediately it can be seen that deciding to *where to go for dinner* is different to achieving mutual understanding of a complex

design problem. Deciding where to go for dinner was one of the discourse chunks from the December 2001 meeting.

Other interesting observations are that achieving mutual understanding of a complex design problem involves follow up on the relevant discourse chunks through e-mail after the face-to-face meeting. However, themes such as deciding where to go for dinner do not have any continuation through e-mail. This may be because this type of theme is placed according to the short term timescale, whereas achieving understanding of a complex design problem is placed according to the long term timescale. Short term timescale shows that there is no significance after that event has taken place. In contrast, the long term timescale shows that there is still significance after 3-months. In addition, achieving mutual understanding of a complex design problem involves discourse chunks which are longer in length and more likely to be present at each of the face-to-face meetings in order to show the team what progress has been made in their work since the last meeting and to receive feedback and comments from the team members. In contrast, achieving mutual understanding on themes such as deciding where to go for dinner are likely to be shorter in length and may not be present at all the face-to-face meetings, as formal dinners may not be arranged after each meeting.

This section therefore draws on the different topics of agreement which are being reached in the discourse chunks in order to see how mutual understanding is achieved.

In discourse chunk *Dining plans* (17/12/01), Hazel was informing the team of the plans which had been made for everyone to have their evening meal together, following the close of day one of the meeting. There was evidence of growth in mutual understanding in this ensuing discourse chunk and there was evidence of sub-state 1.1, growth in mutual understanding and agreement. There was evidence of sub-state *1.1* in the following situations. The time proposed for dinner was very early for some of the partners; explaining the significance of the name of the restaurant and planning to meet team members at a central location so that everyone could travel to the restaurant together. Overall, there was growth in mutual understanding in this discourse chunk because all partners were informed of what the plans were for that evening. This was salient information that was shared amongst the team members (for example, what time they would be meeting and where they would go to eat their dinner). This theme established common ground. There was also evidence of increased mutual beliefs in this theme. The utterances which provided evidence of grounding led to mutual beliefs that the timing for dinner was early for some partners, the symbolism of the name for the restaurant that they would be dining at and the plans that they were to meet up with team members so that they could travel to the restaurant together. There was no evidence of team members belief state altering in this theme as there was only evidence of agreement. Thus the topics of agreement in this discourse chunk were that everyone was invited to have dinner together and there would be a meeting at a central point for team members to walk together to the restaurant.

However, when compared to working on the project, and more specifically towards something more challenging, for example, achieving mutual understanding of a complex design problem, achieving agreement is not always so straightforward. This is because of the need to interact with members of different disciplines. Section 5.3.5 looks in more detail at working in a multidisciplinary team, drawing

on three types of stakeholders in the project. That is those with technical contributions to the project, those with user related contributions to the project and those with both technical and user related contributions to the project.

Now examined are the topics of agreement in achieving mutual understanding of a complex design problem by looking in detail at work packages 2, 3 and 4 as these three work packages are associated with technical developments. Work package 2 is plugins for speech recognition and synthestis integration, with the possibility of adjusting the speed of the synthisiser; work package 3 is tool development and work package 4 is creation of an accessible e-learning portal. The three work packages were all inter-related and the contributions from work packages 2 and 3 were used in work package 4, the e-learning portal.

Work package 2 is examined first.

5.2.12.1 Work package 2

The 11 themes of agreement for work package 2 are now examined. Within each theme relevant topics are identified looking at situations which created mutual belief, thus agreement amongst the communicating parties. Also, included are identifiers to show which situation in appendix X references the full set of interactions showing between who mutual belief was established.

Providing relevant information to the technical partners which may assist them in their development

Identifier to the interaction	Description of the topic where agreement was reached
35, 36, 37, 272	• To find out from users what can be done with current screen readers and what is still lacking.
39	• To identify what the project can add to the way information is currently accessed.
149	• To answer where is the benefit in using the project tool as screen readers are already powerful.
159, 160, 166	• Looking at interactivity, extracting information and producing websites for sighted and non-sighted persons.
55, 150, 154	• Providing examples of who the project tool would be suited for.
242	• Informing what areas are hard for blind and visually impaired people.
237, 271, 279, 289, 290	• Talking about development issues.
314, 315	• Relevant information which was provided on screen readers should have been examined.

Comments on providing relevant information to the technical partners which will assist them in their development

Identifier to the interaction	Description of the topic where agreement was reached
16, 47, 48, 50	• To contact screen reader manufacturers to receive technical information on screen readers.
5, 6, 197, 198	• Relevant technical information had already been provided.
1, 178, 180	• Partners 1 and 2 need to articulate what they need to know.
259, 291, 292	• To work with XML and ConPalabras to see how what you are proposing goes beyond what they already have.

Technicians talking about the technical development

Identifier to the interaction	Description of the topic where agreement was reached
199	• Information used in their work.
28, 29	• Talking about what the tool will do and what is important for the tool to do.
275, 337	• Require feedback from the users to see what other solutions can be found.

Sharing information used for the technical developments with others in the team

Identifier to the interaction	Description of the topic where agreement was reached
190	• To provide a list of screen readers which were used.

Comments on the technical development

Identifier to the interaction	Description of the topic where agreement was reached
204, 206, 208, 212	• Questioning the voice input which was used
221, 223, 258, 273, 274	• Providing comments on the development work.
248	• Talking about aspects of development that have not yet been developed but can be.
211, 235	• Being shown development which is less than what existing solutions can provide.

Project vision

Identifier to the interaction	Description of the topic where agreement was reached
99, 115, 122	• Need a vision of what the project is offering before going to the users. There must also be a vision of what and how the project can provide a benefit to already existing screen readers

Not understanding what the project system is going to do

Identifier to the interaction	Description of the topic where agreement was reached
260	• Cannot understand the limit of the user requirements until there is an understanding of exactly what the project system will do.

Checking the understanding of the project

Identifier to the interaction	Description of the topic where agreement was reached
40, 41, 43, 92	• Checking the understanding of the project that has been set

Showing users and seeking feedback

Identifier to the interaction	Description of the topic where agreement was reached
53, 54, 58, 59, 60, 61, 175	• There should be something to show to the users to get feedback. Should not spend too much time on development as changes will need to be made.

Blind team members to test out what is being developed.

Identifier to the interaction	Description of the topic where agreement was reached
234	• Finding out if there is a website which can be tried to see how it works.

To provide another presentation

Identifier to the interaction	Description of the topic where agreement was reached
333	• Another presentation is delivered to show what the voice solution can provide and some possibilities for accessibility. The presentation on the previous day was not continued as certain team members reacted by saying it was based on incomplete data.

This analysis shows that the theme with the most topics where agreement was reached was showing users and seeking feedback. This was a surprising finding as the researcher had expected themes such as providing relevant information to the technical partners which may assist them in their development work and comments on the technical development to have produced the themes including the topics where agreement was most reached. The first theme was because only some partners were involved in the technical development, however, everyone in the project had a say on what was being built, with comments and suggestions collected for future improvements. The second theme was because the team would share their comments and suggestions with the technical developers, allowing improvements to be made.

Work package 3 is examined next.

5.2.12.2 Work package 3

The ten themes of agreement for work package 3 are now examined. Within each theme relevant topics are identified looking at situations which created mutual belief, thus agreement amongst the communicating parties. Also, included are identifiers to show which situations in appendix X shows the full set of interactions showing between who mutual belief was established.

Providing relevant information to the technical partners which may assist them in their development

Identifier to the interaction	Description of the topic where agreement was reached
3, 4	• Working hands on with the screen reader technology which was demonstrated would be useful.
48, 49, 55, 110	• Looking at interactivity, extracting information and producing websites for sighted and non-sighted persons.
212, 213	• Providing examples of who the project tool would be suited for.
65, 66, 97	• Informing what areas are hard for blind and visually impaired people.
127, 128, 138, 221, 248	• Talking about development issues.
109	• Identifying contents
39, 91, 202, 203, 212	• Explaining areas of innovation.
124	• It is ok to have an authoring tool to produce XML content.
125	• No need to produce a completely new authoring tool.
135	• Feel it is now clearer what is expected to be produced.
17, 19, 20, 56	• Providing examples.

Technicians talking about the technical development

Identifier to the interaction	Description of the topic where agreement was reached
13, 27, 44, 84, 222, 319, 343, 344, 345	• Talking about development issues.
220	• Do not have technical knowledge on screen readers.
391	• A parser will be used but it is not yet ready.
317	• Technical work which they are working on is difficult.

Comments on the technical development

Identifier to the interaction	Description of the topic where agreement was reached
172, 173, 179, 180	• Presenting results on testing the development with a blind user.
205	• Feeling that the technicians are trying to produce what screen readers currently provide.
284, 286	• Without proposals or designs being shared, feedback cannot be given. This is one of the reasons for holding face-to-face meetings.
280	• There is a need to hear what technical work has been done.
361	• Difficult to provide comments on short presentations, a longer presentation is necessary.
400, 401	• To use a wizard.
433	• It is difficult to build an interface without knowing what the program is and does.

Sharing information used for the technical developments with others in the team

Identifier to the interaction	Description of the topic where agreement was reached
251, 252	• Will send document with a list of functionality for the tool and to receive comments from the users.
313, 314, 315	• To produce a document based on what Geoff said regarding the technical work done in this area.
75, 165, 169	• Showing prototypes.
324, 325, 326	• The prototype which is being developed will be distributed to the team.

Blind team members to test existing material

Identifier to the interaction	Description of the topic where agreement was reached
147	• Asking a blind team member to look at existing materials to see what solutions they propose.

Expressing concerns

Identifier to the interaction	Description of the topic where agreement was reached
243, 244, 245, 246, 247	• There is a demand which cannot be met. Also the promises and capabilities seem to be a long way apart.
282	• Do not have to wait for the requirements in order to author things for the web as this does not depend on user requirements.
431, 432	• Concerns that what was produced by partner 4 has already been presented before.

Explaining what is being shown

Identifier to the interaction	Description of the topic where agreement was reached
82, 83	• To explain everything that is on the screen.

Checking the understanding of the project

Identifier to the interaction	Description of the topic where agreement was reached
88, 126, 239	• Checking the understanding of the project that has been set.

Looking at deadlines

Identifier to the interaction	Description of the topic where agreement was reached
289, 290	When the prototype of the integration of the tool should be finished by.

Working in an European Union funded project

Identifier to the interaction	Description of the topic where agreement was reached
2	Cannot change objectives once an European Union project has been approved and funding is received.

This analysis shows that the theme with the most topics where agreement was reached was technicians talking about the development work in topic talking about development issues. This was not a surprising finding as the development work was the purpose of this work package. The next highest theme was providing relevant information to the technical partners which may assist them in their innovation in topic explaining areas of innovation which was relevant to the development work the technical partners were undertaking.

Work package 4 is examined next.

5.2.12. 3 Work package 4

The nine themes of agreement for work package 4 are now examined. With each theme topics were also identified in an identical manner to work packages 2 and 3, that is by looking at situations which created mutual belief, thus agreement amongst the communicating parties. To refer to the full set of interactions showing where and between who mutual belief was established, look at appendix X. Identifiers to the interactions are also included to make this process easier.

Providing relevant information to the technical partners which may assist them in their development

Identifier to the interaction	Description of the topic where agreement was reached
4	• Information on the needs for e-learning for visually impaired students will be presented.
35	• To convert material found into XML.
17, 28	• Providing examples of e-learning.
27	• Identifying contents and difficulties encountered in identifying contents.
75	• Using the results from the evaluation sessions to feed into the development of the e-learning portal.
79, 80, 81, 82	• To purchase e-learning courses as they are not expensive. This way the functionality can be demonstrated.
94	• Informing the team that it is not always necessary to buy e-learning courses.
100, 101	• Proposal to look at a variety of e-learning courses to find a number of e-learning problems.
143	• Redesigning some HTML can show whether or not VoiceXML can help the user.
145, 147	• To identify real e-learning problems.
148, 149	• Proposal to apply the WAI guidelines to the e-learning websites.
151	• No need to find a voice solution to every problem that is found.
153, 154	• Informed that because something is accessible, it does not automatically make it suitable for learning.
178	• Users could still use the Mindleaders course, despite having some problems. With other e-learning sites the courses cannot be used at all by visually impaired users.
228	• There are aspects of e-learning where voice interactivity is very important.
229	• Voice can help everyone and not just the blind and visually impaired.
281	• When looking at a voice based e-learning portal, the most important thing is the e-learning experience.
300	• A learning environment should allow you to gain knowledge.
304	• E-learning courses which have been made accessible are not necessarily learnable.
370	• Clarification was given on what an e-learning portal is
130, 131	• To look at real e-learning problems and to propose solutions to them.

Technicians talking about the technical development

Identifier to the interaction	Description of the topic where agreement was reached
85	• Informing the team that they already have some solutions to the problems which are experienced in e-learning.
115, 160	• Partner 1 is going to be creating an e-learning portal.
269	• Have been studying the architecture of the e-learning portal in terms of how you integrate voice on it and voice can be useful.

Comments on the technical development

Identifier to the interaction	Description of the topic where agreement was reached
37	• It is important to understand what VoiceXML gives and where its constraints lie.
74	• Solution should include all languages represented by the project partners.
220	• The sites which were examined were accessible according to the WAI criteria.
275	• To not develop a new portal and to use the one which has already been developed by partner 7.
351	• Informed that the pages which were shown were not accessible.
217	• Informed that the Braille guidelines were used to assign the accessibility ratings for the websites.
411	• What they currently have is version 0.1 of the manual, it is not yet an e-learning course.

Sharing information with the team

Identifier to the interaction	Description of the topic where agreement was reached
5, 6	• Require e-learning to demonstrate its accessibility.
379, 380, 381, 382	• Important to look at the comments addressed by the reviewers. If they are not addressed it will be assumed that you have agreed with them.
	• Work of partner 7 belongs to work package 4.

Requesting information

Identifier to the interaction	Description of the topic where agreement was reached
78	• Requested the presentation on the overview of the evaluation sessions.

Seeking clarification

Identifier to the interaction	Description of the topic where agreement was reached
33	• It is now clear that they can hire someone to work more effectively on the project.
79, 134	• It is not just websites which are being looked at, they are e-learning sites.
181	• For partner 5 to continue looking at e-learning material to see if it interesting for blind people or not.
277	• Partners 1 and 2 are building small solutions to be implemented on the portal. They have only been doing research work up until now.
363	• You need to register first in order to use the portal.

Project objectives

Identifier to the interaction	Description of the topic where agreement was reached
311, 314	• Sharing with the team what the objective of the project is

Talking about changes

Identifier to the interaction	Description of the topic where agreement was reached
10, 13, 14, 15, 18, 12, 122, 123, 124	• Starting the work in work package 4 earlier than planned and looking at the procedure which will need to be followed.

Mentioning difficulties encountered

Identifier to the interaction	Description of the topic where agreement was reached
332	• Will be difficulty to show information on navigation due to using a Spanish keyboard.
334, 335	• The demonstration of Cynthia will have to be shown the following day due to technical difficulties.

This analysis shows that the theme with the most topics where agreement was reached was theme talking about changes. The researcher found this theme surprising as it resulted from changes being identified in the work processes which had to be communicated to the commission.

The next section provides a summary of the qualitative differences in the types of understanding.

5.2.12.4 Summary

There were qualitative differences found in the types of understanding, depending on whether the theme has a short term, medium term or long term timescale.

In the context of a complex design problem, the following themes were all found in work packages 2, 3 and 4. Providing relevant information to the technical partners which may assist them in their development; technicians talking about the technical development and comments on the technical developments. However, there were both similarities and differences in the topics of agreement. This revelation also showed that some themes were discussed during more than one meeting and were also relevant to more than one theme. For work packages 2 and 3 the theme sharing information used for the technical development with others in the team was found. Again there were differences in the topics of agreement in this theme. This theme was also relevant and showed that information was shared amongst team members. In each of the three work packages there was evidence that themes and topics of agreement were not just looking at technical development, but also working on a European research project as well.

The next section looks at other analyses based on the data collected for this investigation.

The next section concludes this chapter.

5.3 Conclusion

This chapter has presented results from two aspects. The first aspect was results for the data collection methods which were selected to collect empirical data for this investigation. The second aspect was monitoring the evolution of mutual understanding in a multidisciplinary team, when team members communicated together face-to-face and using e-mail. Themes were identified, by classifying them into short, medium and long term timescale to monitor this evolution and the results have shown that medium term and long term themes are more widely discussed than short term. This was true for both face-to-face and e-mail interactions. All team members did not attend each meeting and all team members did not send messages to the mailing list.

The next chapter presents other interesting analyses.

Chapter 6

Other interesting analyses

Chapter 6: Other interesting analyses

This chapter includes some interesting analyses which was based on the data collected for this investigation. It includes identifying different phases of group developing, looking at how much time is spent looking at activities which are related to the project in short, medium and long term significance's, working in a multidisciplinary team and having blind and visually impaired team members.

6.1 Group development phases

This section provides some observations for the different phases of group development which were observed using Tuckman's (1965) model of phases groups go through.

Phase	Description
Forming:	During the forming phase team members find out what they will be doing, the styles of leadership that are acceptable, and the kinds of interpersonal and task relationships that are possible. Courtesy, confusion, caution, and commonality typically mark this phase of team development.
Storming:	During the storming phase individual styles come into conflict. There may be conflict over competing approaches to reaching the team's goals. Tension, criticism and confrontation between members characterise this phase.
Norming:	During the norming phase, resistance is overcome as the team establishes its rules and standards, develops intragroup cohesiveness, and delineates task standards and expectations. Cooperation, collaboration, cohesion and commitment mark this phase. On one level, the norming process begins almost immediately when a team is formed as members try to determine which behaviors are acceptable.
Performing:	When teams are at the performing phase, it is ready to focus its attention on accomplishing its tasks. Typical characteristics of this phase include challenge, creativity, group consciousness, and consideration among members.
Adjourning:	Teams do not last forever. Compromise, communication, consensus and closure mark this final phase.

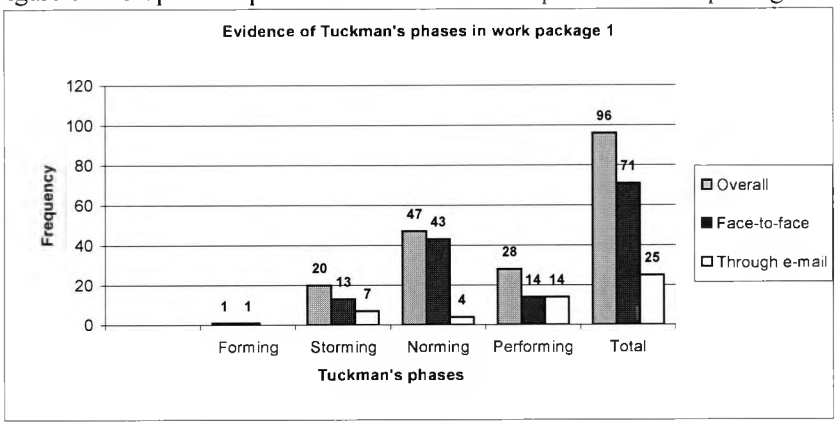
However, in this investigation only four of the five phases were observed (forming, storming, norming and performing), and not the fifth (adjourning). This is because the project work was still continuing after the data collection period for this investigation. The results are presented using the different work packages as headings. However, it is important to bring to attention that evidence of the different phases cannot be compared across the work packages, as each work package was not the same size, therefore it was not a fair comparison to draw. Further, comparisons could also not take place because the same effort was not expended on each work package. For this reason, there may be differences in the quantity of phases observed in the empirical data collected for this investigation. In sum, to determine evidence of each phase, the researcher noted down the number of situations in which that situation was observed and counted together each situation to give the total frequency for each phase. Appendix Y provides a summary of the different phases of group development for the different work packages.

Work package 1 is examined first.

6.1.1 Work package 1

Figure 6.1 shows a graphical representation of the different phases observed in this work package.

Figure 6.1: Graphical representation of Tuckman's phases in work package 1



Work package 1 comprised of 22 discourse chunks and 15 textual chunks. Phases forming, storming and norming were observed more frequently during the face-to-face meetings. This was confirmed by figure 6.1.

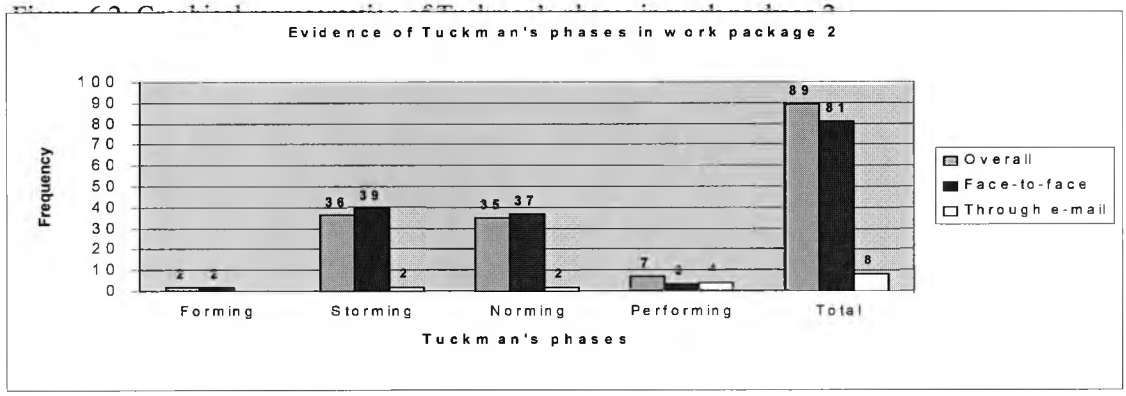
In this work package the highest frequency was the *norming* phase (43/96 = 45%). It was interesting to note that evidence of the forming phase was only found once, and this was observed during the face-to-face meeting. It was also interesting to note that there was an equal number of *performing* phases found in the face-to-face meetings and e-mail interactions.

Overall for this work package 74% (71/96) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 27% (25/94) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at the results for work package 2.

6.1.2 Work package 2

Figure 6.2 shows a graphical representation of the different phases observed in this work package.



Work package 2 comprised of ten discourse chunks and five textual chunks. Phases forming, storming and norming were observed more frequently during the face-to-face meetings. This was confirmed by figure 6.2.

In this work package the highest frequency was the *storming* phase (39/81 = 48%). Also, very close was the *norming* phase, with the next highest frequency (37/81 = 46%). It was interesting to note that evidence of the *forming* phase was only found twice, and this was observed during the face-to-face meetings. It was also interesting to note that in the *performing* phase, this phase was found greater in e-mail messages (4/7 = 57%) than during the face-to-face meetings (3/7 = 43%).

Overall, for this work package 91% (81/89) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 9% (8/89) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at the results for work package 3.

6.1.3 Work package 3

Figure 6.3 shows a graphical representation of the different phases observed in this work package.

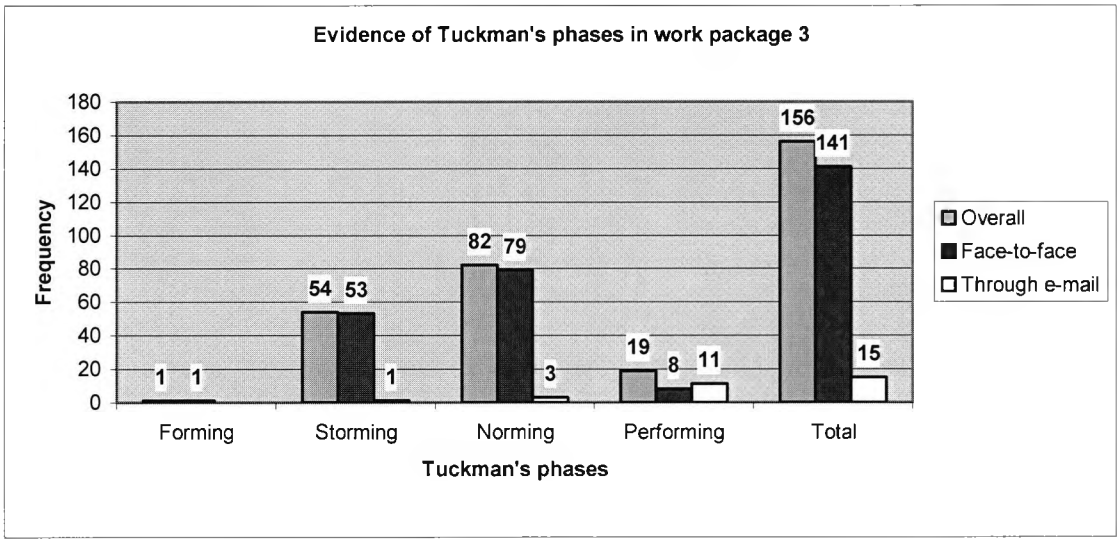


Figure 6.3: Graphical representation of Tuckman's phases in work package 3

Work package 3 comprised of 18 discourse chunks and eight textual chunks. Phases forming, storming and norming were observed more frequently during the face-to-face meetings. This was confirmed by figure 6.3.

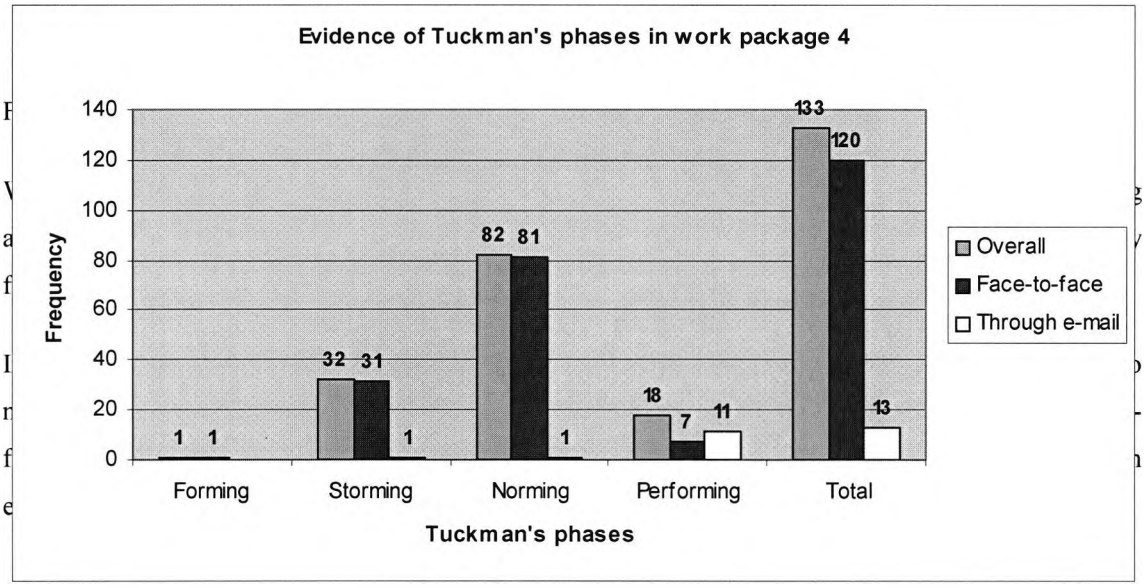
In this work package the highest frequency was the *norming* phase (79/156 = 51%). It was interesting to note that evidence of the forming phase was only found once, and this was observed during the face-to-face meeting. It was also interesting to note that in the performing phase, this phase was found greater in e-mail messages (11/19 = 58%) than during the face-to-face meetings (8/19 = 42%).

Overall for this work package 90% (141/156) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 10% (15/156) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at the results for work package 4.

6.1.4 Work package 4

Figure 6.4 shows a graphical representation of the different phases observed in this work package.



Overall, for this work package 90% (120/133) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 10% (13/133) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at the results for work package 5.

6.1.5 Work package 5

Figure 6.5 shows a graphical representation of the different phases observed in this work package.

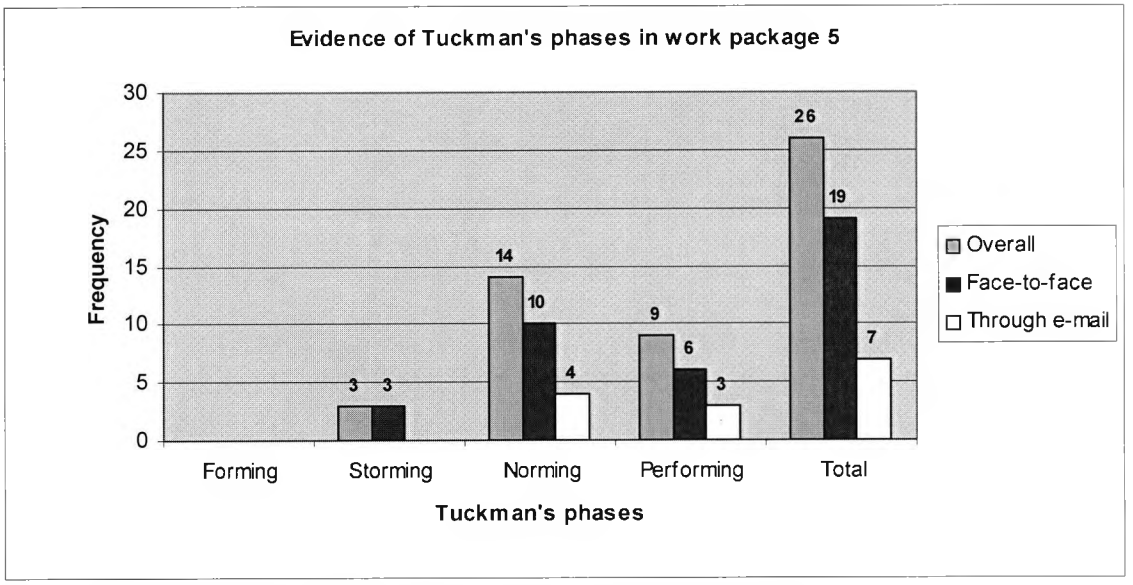


Figure 6.5: Graphical representation of Tuckman's phases in work package 5

Work package 5 comprised of nine discourse chunks and six textual chunks. Phases forming, storming and performing were observed more frequently during the face-to-face meetings. This was confirmed by figure 6.5.

In this work package the highest frequency was the *norming* phase (14/26 = 54%).

Overall, for this work package 73% (19/26) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 27% (7/26) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at the results for work package 6.

6.1.6 Work package 6

Figure 6.6 shows a graphical representation of the different phases observed in this work package.

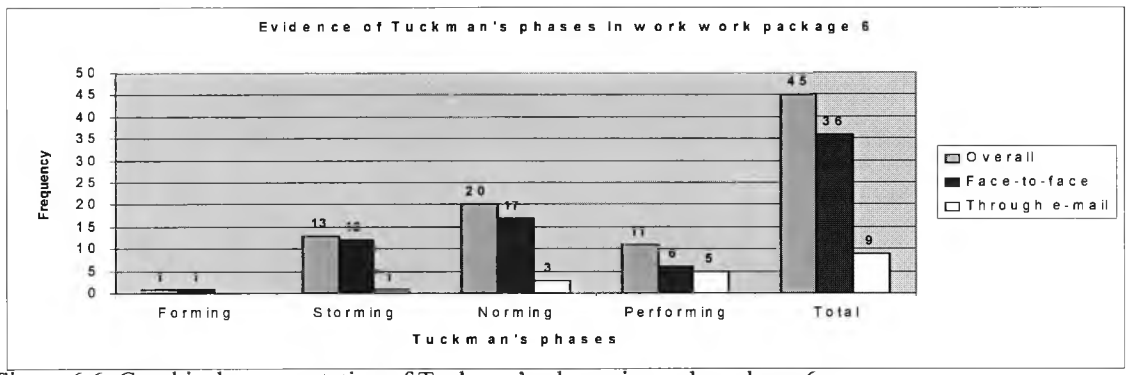


Figure 6.6: Graphical representation of Tuckman's phases in work package 6

Work package 6 comprised of 11 discourse chunks and eight textual chunks. Phases forming, storming, norming and performing were observed more frequently during the face-to-face meetings. This was confirmed by figure 6.6. This figure also shows that the values for face-to-face and e-mail were very close for the performing phase.

In this work package the highest frequency was the *norming* phase (19/39 = 49%). It was interesting to note that evidence of the forming phase was only found once, and this was observed during the face-to-face meeting.

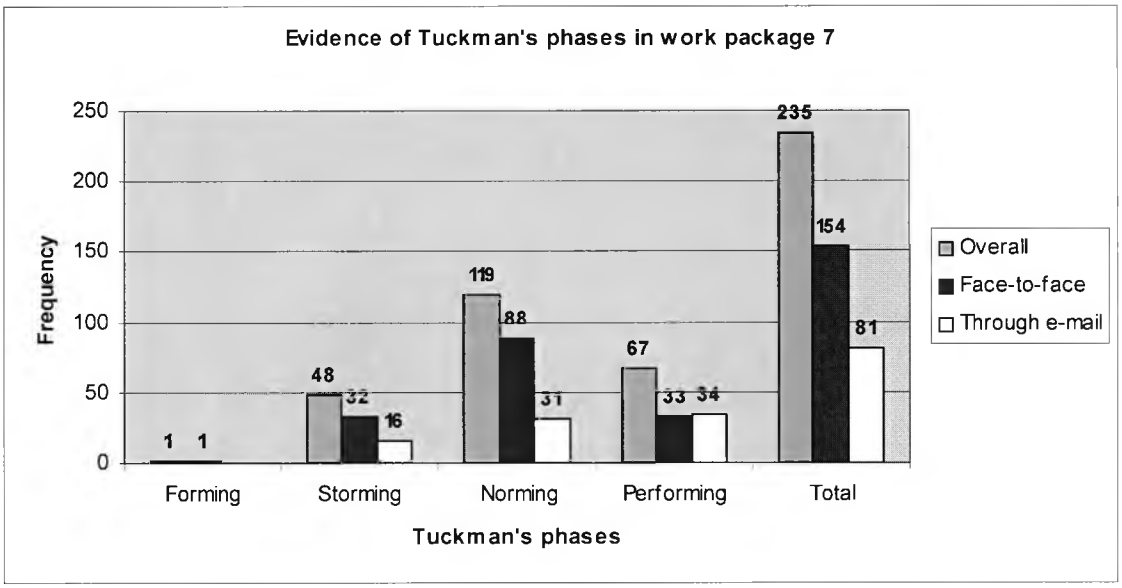
Overall, for this work package 80% (36/45) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 20% (9/45) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at the results for work package 7.

6.1.7 Work package 7

Figure 6.7 shows a graphical representation of the different phases observed in this work package.

Figure 6.7: Graphical representation of Tuckman's phases in work package 7



Work package 7 comprised of 71 discourse chunks and 46 textual chunks. Phases forming, storming and norming were observed more frequently during the face-to-face meetings. This was confirmed by figure 6.7.

In this work package the highest frequency was the *norming* phase (119/235 = 51%). It was interesting to note that evidence of the forming phase was only found once, and this was observed during the face-to-face meeting.

Overall, for this work package 66% (154/235) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. Only 34% (81/235) was observed in the e-mail messages sent to the team following the face-to-face meetings.

The next section looks at category other.

6.1.8 Other

Figure 6.8 shows a graphical representation of the different phases observed in this category. The two discourse chunks which are used for category other are *availability* and *glossary*.

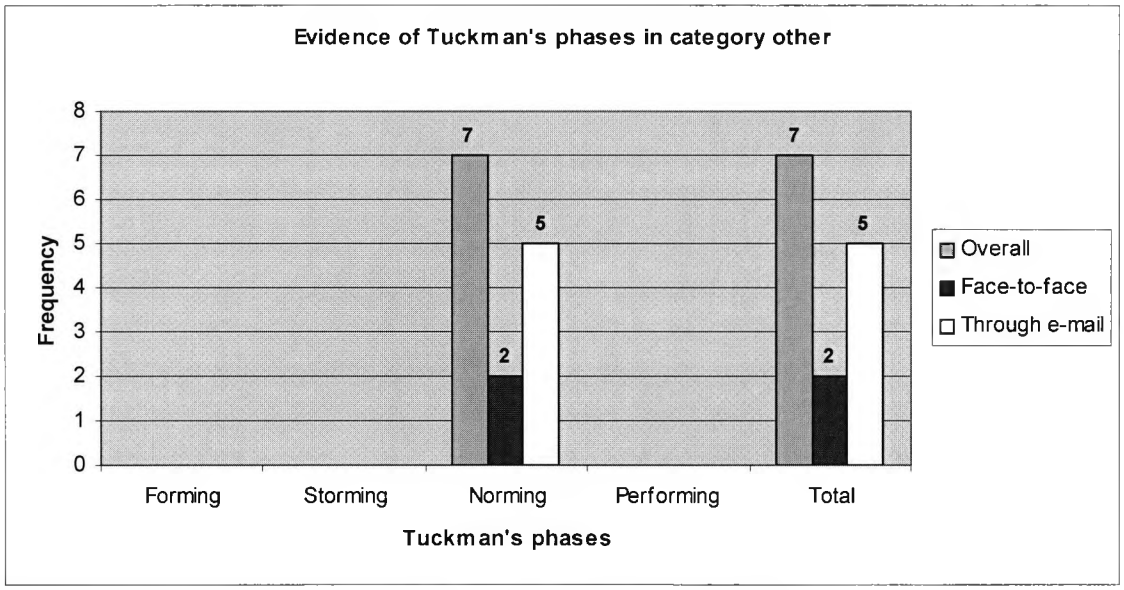


Figure 6.8: Graphical representation of Tuckman's phases in category other

Category other comprised of two discourse chunks and five textual chunks. Only phase norming was observed more frequently through e-mail. This was confirmed by figure 6.8.

Overall, for this work package 29% (2/7) of phases for Tuckman's phases of group development was observed during the face-to-face meeting. 71% (5/7) was observed in the e-mail messages sent to the team following the face-to-face meetings. An interesting observation was that there were more situations observed in the e-mail messages sent to the team following the face-to-face meetings, than the face-to-face meetings themselves.

The next section provides a summary of Tuckman's different phases, found in face-to-face and e-mail interactions.

6.1.9 Summary

This section summarises the findings between work packages 1 – 7 and the category other which includes two discourse chunks which did not fit into any of the headings for work packages 1-7.

- Work package 1: The number of situations observed during the face-to-face meetings and e-mail interactions for the *performing* phase were identical;
- Work package 2: The number of situations observed during the face-to-face meetings and e-mail interactions for the *performing* phase were very close;
- Work packages 3, 4 and 5: Same as work package 2 (the number of situations observed during the face-to-face meetings and e-mail interactions for the *performing* phase were quite close);
- Work packages 6 and 7: Same as work package 2 (the number of situations observed during the face-to-face meetings and e-mail interactions for the *performing* phase were very close).

Overall, work packages 1, 3, 4, 5, 6 and 7 all had the *norming* phase with its highest frequency. So did category other which included two relevant themes, but were not part of work packages 1-7. It was interesting to note that work package 2 had the *storming* phase with the highest frequency.

During face-to-face interactions, the phase with the highest number of frequencies was *norming*. However, the only work package which has an exception to this is work package 2, which had *storming* as its highest number of frequencies.

For e-mail interactions, the phase with the highest number of frequencies was *perfoming* for work packages 1, 2,3, 4, 5 and 7.However, work package 5 and category other had *norming* as the phase with the highest number of frequencies.

Another interesting observation was that work packages 2, 3 and 4 which all included technical development each had *storming* as its highest phase. This suggested that technical development was not an easy area to work in

The next section predicts differences in different meetings.

6.2 Predicting differences in different meetings

The predictions listed below are based on the observations and analysis performed in this section. As reported by a team member in the case study project team, the purpose of face-to-face meetings are to share what work has been done by individual team members. The process involved in working in a European Research project team is also included. However, it must be emphasised here again that the researcher was not involved in planning stages of the project or attended the project kick-off meeting. In addition, four types of meetings have been characterised. For any project which involves more than four meetings would see meeting three repeated until the last meeting is held, which is characterised by meeting four. Also, it is not known if at the final meeting, team members may display evidence of the storming phase. However, the researcher included this as a prediction.

Before approval is examined first.

6.2.1 Before approval

Working together on a European Union project requires a considerable amount of effort, especially in preparing and producing a project proposal. This proposal would detail the aims, objectives and goals of the project. Also, included is a detailed examination of the partners that could work together on the projects aims, objectives and goals, including a profile of the team members.

After project approval is examined next.

6.2.2 After project approval

- After gaining approval for the project, a kick-off meeting is held to discuss in greater detail how the progress will work. At this meeting you would expect to see the *forming* and *storming* phases.
- At the first face-to-face meeting each partner is required to provide an update of what work was done since the kick-off meeting. At this meeting you would expect to see the *forming*, *storming* and *norming* phases.
- At the second meeting each partner is required to provide an update on what work was done since the last meeting. At this meeting demonstrations may be shown, where comments and suggestions would be sought. Discussions and decisions may also be made on how to progress with work in this area. At this stage you would expect *storming*, *norming* and *performing*.
- At the third meeting, each partner should continue providing an update on the work done since the last meeting. Further development work may also be shown. Discussions and decisions would take place allowing progress to be made in the project work. At this stage in the project you would expect mainly the *performing* phase with little evidence of the *storming* and *norming* phases.
- At the fourth meeting partners should continue providing an update on the work completed since the last meeting. If any new development work was done this should be showed and discussed. At this stage you would expect to see mainly the *performing* phase, but also evidence of *storming* phase as some team members may have some strong reactions and comments on the progress that was made in the project. This is characterised as the last meeting.

The next section examines behaviors in different meetings.

6.3 Examining behaviours in different meetings

The insights from above on predicting differences in different meetings can be used to examine different types of behaviour in different meetings in more detail.

Kick-off meeting

Behaviour	Description of behaviour	Phase
Informing	Introducing team members	Forming
Reviewing	Reviewing the project objectives	Storming, norming
Decision making	Making decisions on how to meet the project objectives	Storming, norming
	Establishing the next meeting date	Storming, norming

1st meeting

Behaviour	Description of behaviour	Phase
Informing	Introducing team members	Forming
Reviewing	Updating everyone on the work done since the last meeting	Norming, performing
	Comparing against original objectives	Storming, norming
Decision making	Making decisions on how to meet the project objectives	Storming, norming
	Establishing the next meeting date	Storming, norming

2nd meeting

Behaviour	Description of behaviour	Phase
Informing	Introducing team members	Forming
Reviewing	Updating everyone on the work done since the last meeting	Norming, performing
	Showing demonstrations developed	Storming, norming
	Comparing against original objectives	Storming, norming
Decision making	Making decisions on how to meet the project objectives	Storming, norming

	Establishing the next meeting date	Storming, norming

3rd meeting

Behaviour	Description of behaviour	Phase
Informing	Introducing team members	Forming
Reviewing	Updating everyone on the work done since the last meeting	Norming, performing
	Showing demonstrations developed	Storming, norming, performing
	Comparing against original objectives	Storming, norming, performing
Decision making	Making decisions on how to meet the project objectives	Storming, norming
	Establishing the next meeting date	Storming, norming

4th meeting

Behaviour	Description of behaviour	Phase
Informing	Introducing team members	Forming
Reviewing	Updating everyone on the work done since the last meeting	Norming, performing
	Showing demonstrations developed	Storming, norming, performing
	Comparing against original objectives	Storming, norming, performing
Leaving	Leaving the project team	Adjourning

At the kick-off meeting you may find evidence of the *storming* phase as team members may have had an opportunity to sit down and read in detail what was planned in the project. In between the time of submitting the project proposal and receiving confirmation that the project will be funded, there may be differences in opinions in some of the team members. This may be expressed by questioning some of the processes which were included in the proposal. Research developments may also influence some of the discussions which are held at this meeting, as what may have appeared novel at the time of producing the proposal may no longer be the case.

After the first meeting, there is only need to include the informing phase to introduce yourself to the team and new members only if there are new members which have joined the team since the last meeting. If there are no new team members this behaviour can be omitted.

At the first four meetings, not including the kick-off meeting, the following behaviour was included. That is comparing against original objectives. This was included to show that it is necessary to compare against the original objectives to make sure that progress is being made in the right areas and in a satisfactory process. As time progresses in the project it shows that the performing phase can be reached.

At the second meeting onwards, the following two behaviours are included. The first is showing demonstrations developed and comparing against the original objectives. If the project you are using is not developing any demonstrations to show this behaviour can be omitted. However, the second behaviour, developing and comparing against the original objectives is important for all types of project activities. The phases for the two behaviours show that as time increases in the project, there will also be evidence of the performing phase.

At four of the five meetings establishing the next meeting dates shows having the same behaviour. This is because arranging a meeting date can become a difficult task, involving lots of negotiations and handling lots of differences in opinion. This shows that arranging one meeting does not make the task of establishing future meeting dates any easier. In addition, working with team members from different

countries may also add to the complexity in deciding on the dates for the next meeting, as they may not have the same working pattern that you are used to. In the last meeting, the behaviour establishing the next meeting date is not included as this is the end of the project.

In the fourth meeting there is a behaviour not included at previous meetings and this is leaving. This is followed by the phase adjourning where the project dissembles after working on the aims, goals and objectives.

The next section examines the concept of time.

6.4 Examining time

In this section the discourse and textual chunks for each work package are categorised according to short term, medium term or long term timescale. As mentioned in chapter 4, *short term* refers to those areas that have no significance after the event has taken place (for example, dining plans for a particular evening). *Medium term* refers to those areas that have no significance after 3-months (for example, all activities directly related to the project). And *long term* refers to those areas that still have significance after 3-months. The 3-monthly period was selecting because the formal face-to-face consortium meetings took place once every 3-months. Therefore the same duration was applied to characterise the three different time periods.

Work package 1 is examined first.

6.4.1 Work package 1

This work package comprised on 22 discourse chunks and 15 textual chunks. The timescale with the highest frequency was *long term* appearing 81% (30/37 times). 63% (19/30) appeared in discourse chunks and 37% (11/30) in textual chunks.

Figure 6.9 shows a graphical representation of the different timescales observed in this work package.

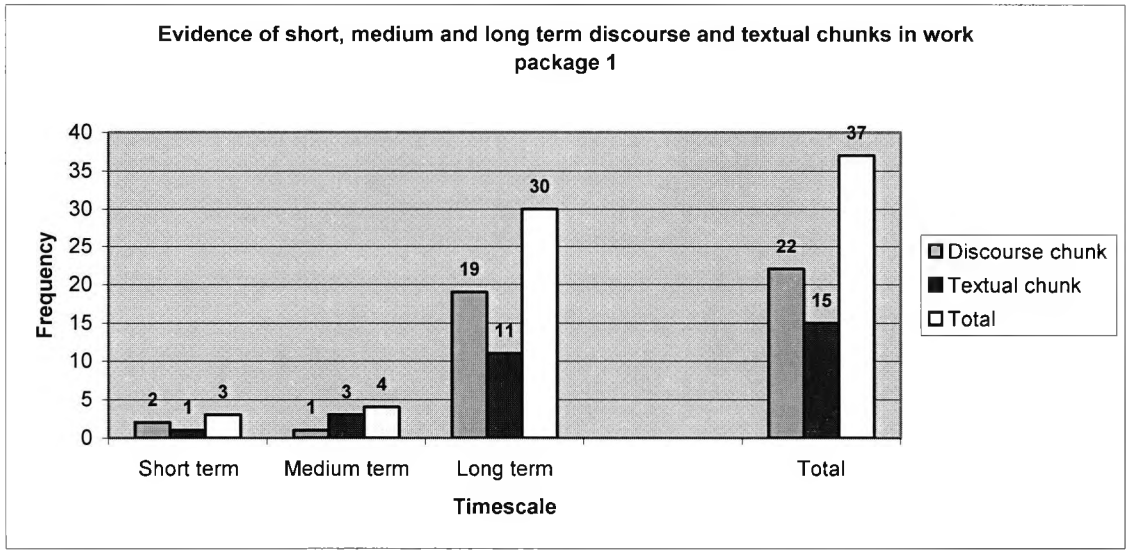


Figure 6.9: Graphical representation of different timescales for discourse and textual chunks in work package 1

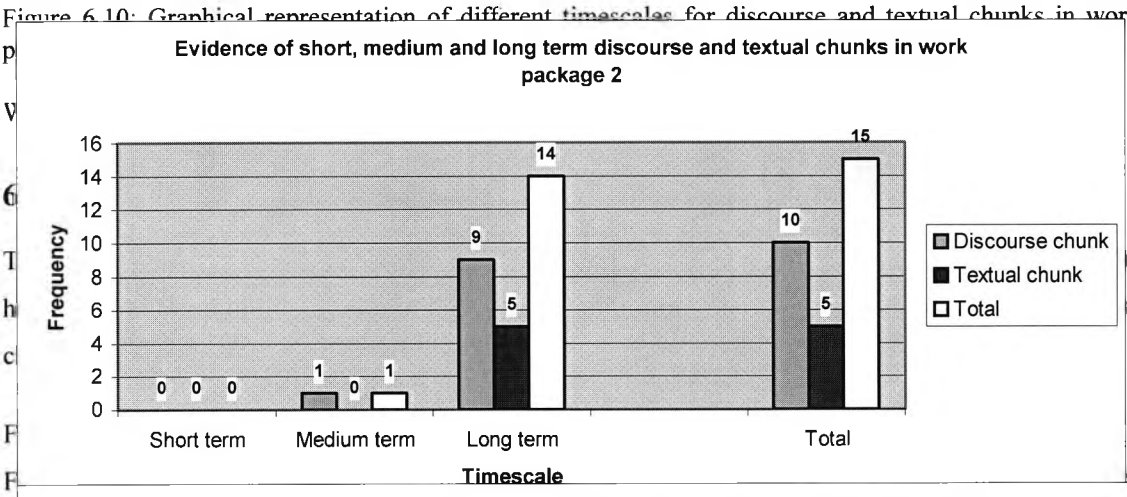
Work package 2 is examined next.

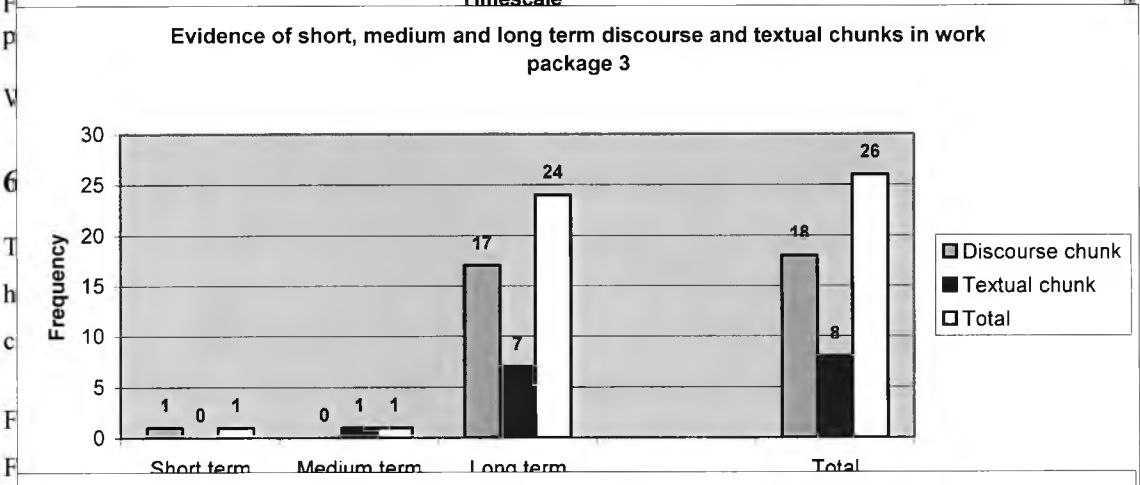
6.4.2 Work package 2

This work package comprised on ten discourse chunks and five textual chunks. The timescale with the highest frequency was *long term* appearing 93% (14/15 times). 64% (9/14) appeared in discourse chunks and 36% (5/14) in textual chunks.

Figure 6.10 shows a graphical representation of the different timescales observed in this work package.

Figure 6.10: Graphical representation of different timescales for discourse and textual chunks in work





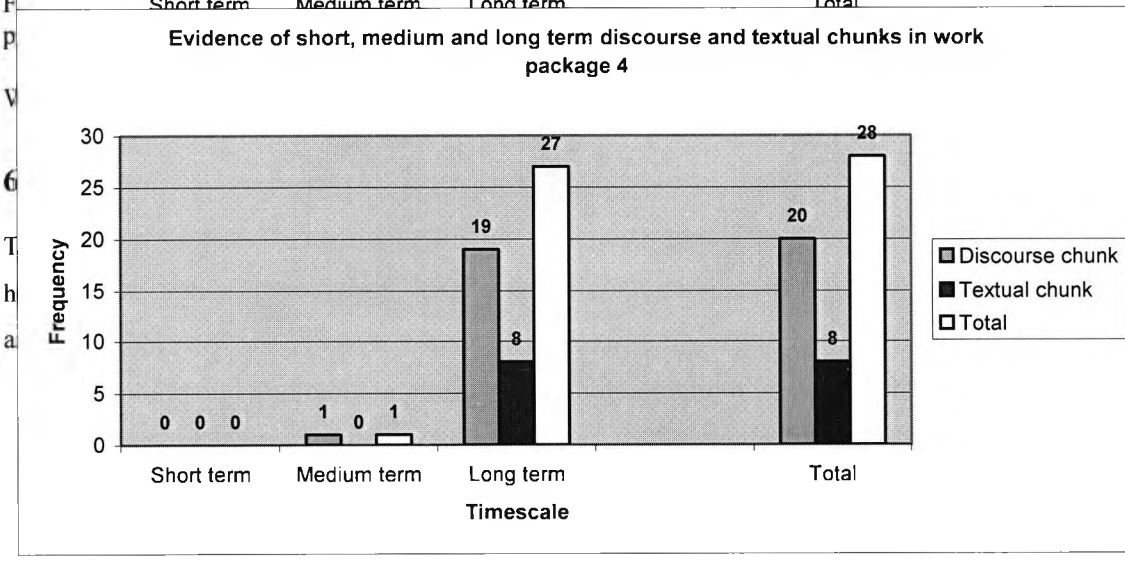
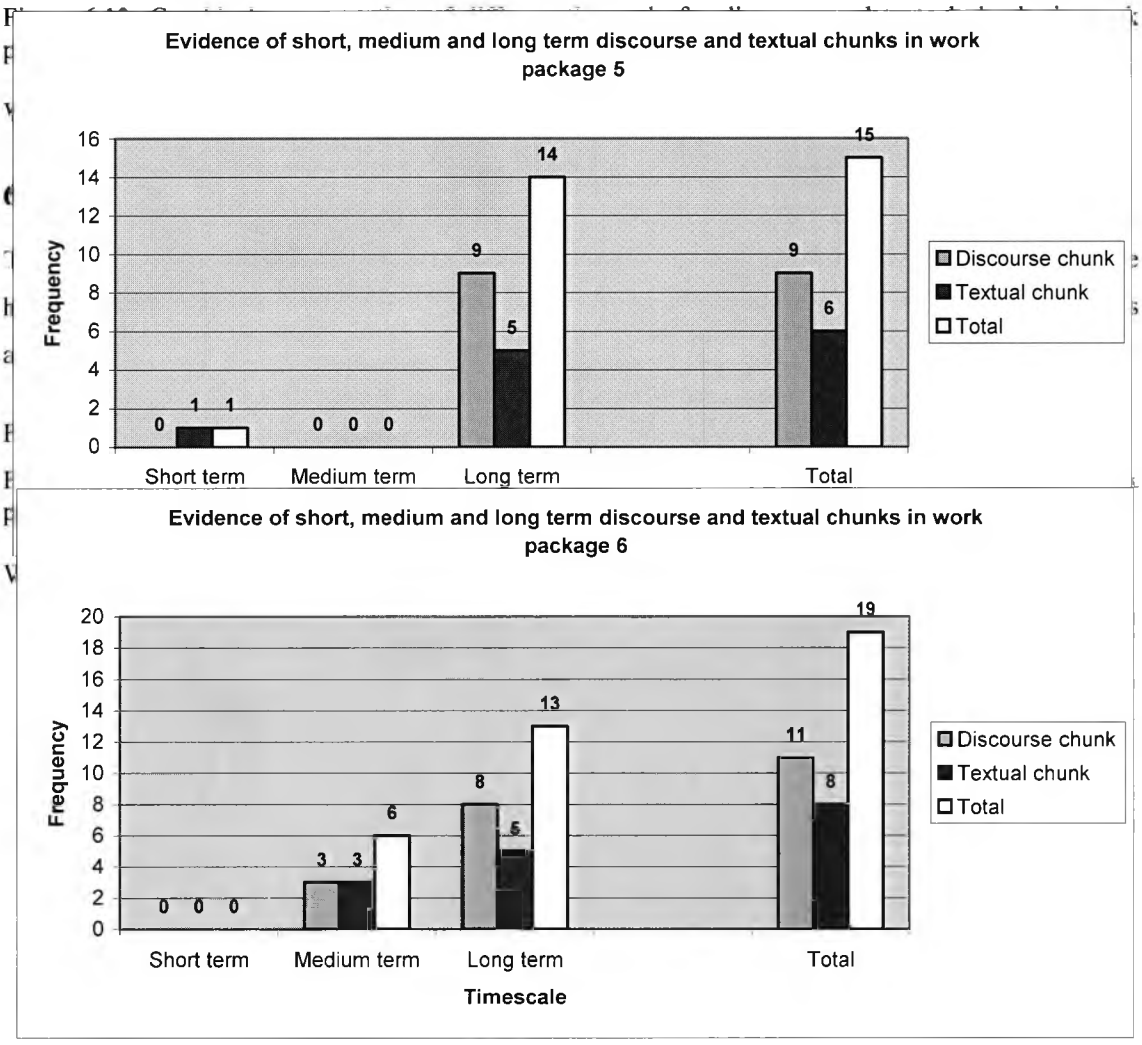


Figure 6.13 shows a graphical representation of the different timescales observed in this work package.



6.4.7 Work package 7

This work package comprised on 70 discourse chunks and 47 textual chunks. The timescale with the highest frequency was *medium term* appearing 48 % (56/117 times). 41% (23/56) appeared in discourse chunks and 59% (33/56) in textual chunks.

Figure 6.15 shows a graphical representation of the different timescales observed in this work package.

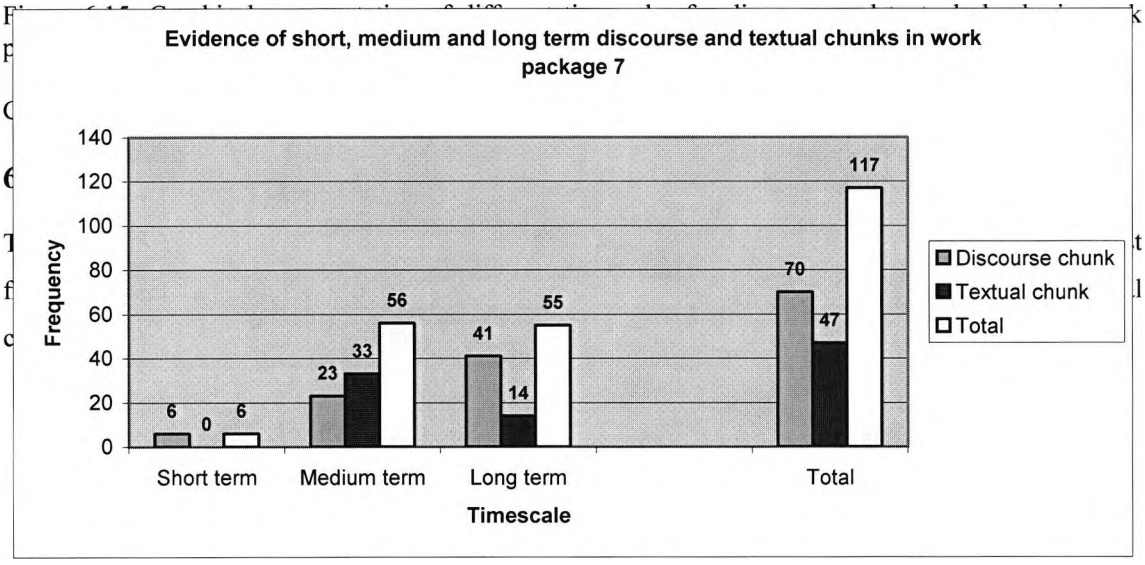
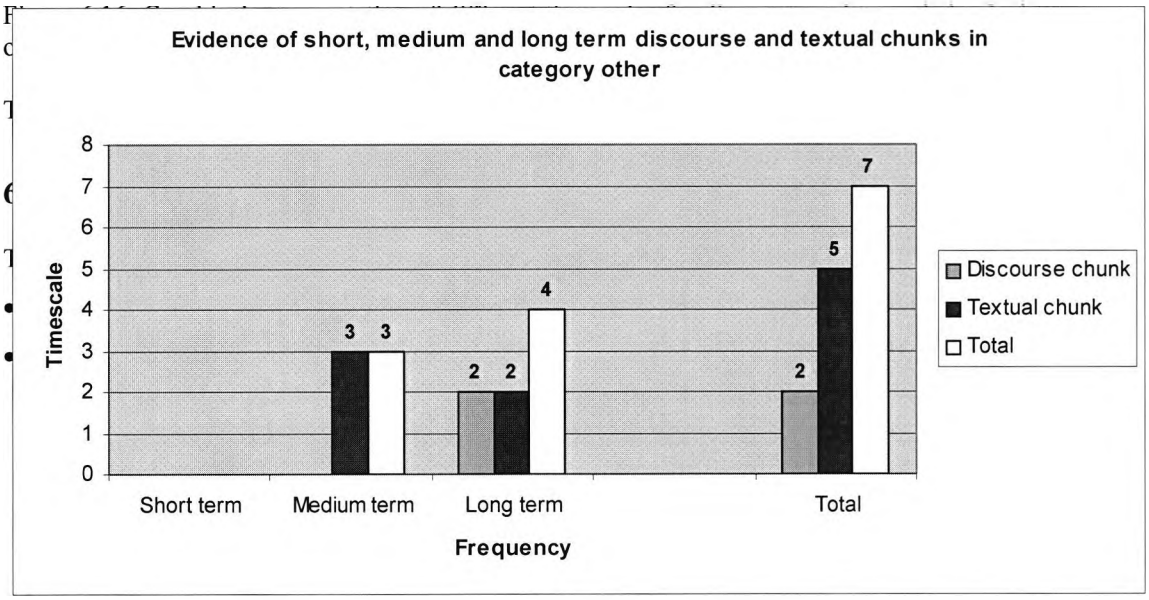


Figure 6.16 is a graphical representation of the different timescales observed in this category.



Overall, there was a higher number of discourse chunks than textual chunks when looking at timescales for each work package, however, there was an exception when category other was examined which had more textual chunks than discourse chunks. Finding a higher number of discourse chunks than textual chunks was true for the short term and long term timescales. Differences however appeared in the medium term timescale, where there were a higher number of textual chunks than discourse chunks. Exceptions to this were work packages 2 and 4. Also, work package 5 had neither textual or discourse chunks looking at medium term timescales. Lastly, work package 6 had identical number of textual and discourse chunk timescales looking at the medium term timescale.

It was not a surprising finding that for each work package a large amount of time during the face-to-face meetings was spent looking at long term timescales. This was because there were a large number of partners that were attending the meeting to look at what work partners had been doing on the project. Therefore, it was important that the amount of time that was spent during the face-to-face meetings were looking at activities that contributed towards the project objectives.

The work package which had the highest number of e-mails sent following the face-to-face meetings was work package 7. Although this was an interesting observation, no comparisons could be made between the number of e-mails that were sent, and also the number of timescales observed in each work package as each work package was not identical in size and different time efforts were expended in each. In addition, each work package did not start at the same time, as already mentioned when looking at phases of group development in the section above.

The next section examines working in a multidisciplinary team.

6.5 Focussing on mutual understanding between different sets of stakeholders in a multidisciplinary team

Examined in detail is focus on multidisciplinary design team concentrating in particular on mutual understanding between different sets of stakeholders. In order to present the insights, work packages 2, 3

and 4 are examined and the summary is presented here as these three work packages look at technical development.

Three sets of stakeholders have been identified in the case study project team. They were users, technical people and the user and technical people. Table 6.1 includes the different set of stakeholders in each of the partners involved in this project. Following this growth in mutual understanding is examined.

Partner number	Background	Stakeholder
1	A telecommunication company	Technical
2	A telecommunication company	Technical
3	A large charity in the UK serving the needs of blind and partially sighted people	User and technical
4	An association for the blind in Italy	User
5	The federation of the blind in France	User
6	The German federation for blind and visually impaired people	User
7	A non-profit making European organisation for the blind and partially sighted	User
8	A research group at a London university	User and technical
9	A research group at a Belgium university	Technical

Table 6.1: Identifying the stakeholders in the project team

There were relevant and interesting suggestions given by team members in order to allow the technical partners to continue their developmental work. Presented here are the insights observed for interactions which resulted in growth in mutual understanding by displaying evidence of mutual belief, thus common ground.

- Team members from the user and technical stakeholders were able to provide relevant information to the technical stakeholders to support them in their development work. Those proposals were agreed by the technical stakeholders, user stakeholders and the user and technical stakeholder. This included blind team members to look for potential problems and to suggest solutions to them. In addition, team members from the user and technical stakeholders examined ways in they could support the technical stakeholder through e-mail interactions and circulating documents of interest.
- Ideas on how to continue work in the development work was also given by team members from the user stakeholders. These ideas were also agreed by the technical stakeholders and the user and technical stakeholders. What is interesting is that some of the team members who belonged to the user stakeholders were blind and visually impaired, thus able to tell the technical stakeholders real-life problems which were experienced and comments on real-life experiences based on using screen reader technology. They were also able to inform the technical stakeholders who the project would benefit. In addition, the technical stakeholders were informed by a blind team member from a user stakeholder that they are not required to make a completely new authoring tool. There was agreement from team members belonging to the technical stakeholder.
- Interestingly, to support the technicians, Ben and Charles, from partner 9, shared suggestions on how team members from partner 2 could continue their development work and outlining some of the differences in how sighted and non-sighted people look at websites. Surprisingly in those situations it was team members from the user and technical stakeholder who agreed and the blind users from the user stakeholder group. Proposals on what they could do to assist were also shared. There was agreement from the technical stakeholders too.

- It was only the technical stakeholders who were interested in interacting with the technology which was demonstrated to them, following an opportunity at the first face-to-face meeting.
- Comments on the innovation of what was being shown was questioned by user stakeholders and in particular the potential blind users. This was in the context of being able to answer the area of innovation for the project review. A team member from partner 9, the technical stakeholder agreed to this.

Although the following point is not relevant to supporting the technical stakeholders in their development work an interesting observation was found. A blind team member requested that everything that was shown on the screen was explained for the benefit of those who could not see. It was agreed that everything would be explained.

Insights were also observed looking at task-related interactions.

- Team members from the user and technical stakeholders were able to provide relevant information to the technical stakeholders to support them in their development work. Mistakes that have been made up to now were also brought to the technical stakeholders attention. Those proposals were agreed by the technical stakeholders, user stakeholders and the user and technical stakeholder.
- Team members from the technical stakeholders mentioned the usefulness of the answers provided from a team member belonging to a user stakeholder. They also mentioned what the tool is going to do. There was agreement from a user and technical stakeholder.
- Team member from the technical stakeholder saying that the aspects of developments informed by from the user and technical stakeholder would be manageable to develop.
- Team members from the technical stakeholders mentioning the innovation in what is being shown. There was agreement from user and technical stakeholders, technical stakeholders and user stakeholders.
- Team members from the user stakeholder comment that what is being shown is already available. What is interesting is that this comment came from a blind person. There was agreement by a user and technical stakeholder.

Other interesting observations were:

- When a user stakeholder mentioned that the prototype they are discussing is not the prototype they want to give to the commission, it is something which has relationships with what they want to build up. Technical stakeholders and the user and technical stakeholders all agreed to this point.
- When a user and technical stakeholder mentioned that without a vision of what the project is going to deliver a scenario cannot be made and work that is expected from them cannot be continued. User, technical and user and technical stakeholders agreed to this point.
- Interesting discussions took place where the user and technical stakeholders and user stakeholders said that it was important to have something to the users to show them. Those proposals were agreed by technical and user stakeholders.
- User stakeholders requested to test out what was being shown to see the added value. Agreement from the technical stakeholders that they could do this.
- User and technical stakeholders were able to inform technical stakeholders that what was shown to them was less than existing software solutions.
- Technical stakeholder saying that they need feedback from the users to see what other solutions they can find. There was agreement by a user and technical stakeholder.
- User and technical stakeholders stating that without partners 1 and 2 giving their information on proposals and designs then responses cannot be given. There was agreement from a technical stakeholder, further adding that this is one of the reasons why face-to-face meetings are very important. There was agreement by technical stakeholders on this point.
- Technical stakeholders agreeing that after the discussions which were held they are more clear on where to go from now and what has to be done. There was agreement from user and technical stakeholders too.
- Technical stakeholder proposes to send a document sharing the functionality they are planning to include in the tool. Comments would be welcome on it. A user and technical stakeholder said that this should be incorporated into the work plan for work package 3. There were agreement on this from a technical stakeholder and a user stakeholder.
- A user and technical stakeholder informing the team that they have got a demand which cannot be met, so there is a need to be definite about what part of that demand can be met. There was agreement by a technical stakeholder on this point.
- A user stakeholder informing the team that one of the technical stakeholders had presented a nice array of requirements which seem like a lot of work. There was agreement from several team members but their identity was not revealed to indicate what stakeholder group they belonged too.
- A blind user from a user stakeholder informing the technical stakeholders that the manual that they are to develop should be considered in a variety of formats, including Braille and on tape. There was agreement by a technical stakeholder to this proposal.
- A user and technical stakeholder saying he wants to hear a statement about what the tool will do and to hear in technical terms how it is going to handle VoiceXML. This information cannot be found in the user requirements document. There was agreement by a technical stakeholder.

- A technical stakeholder informing the team that they can be shown what the main events in the technical part are. The user and technical stakeholder comments although a good idea, why this was not incorporated into the time that was assigned in the agenda for the previous days meeting.
- A technical stakeholder saying since they are developers they feel that things are more likely to be explained by showing a prototype. The user and technical stakeholder agreed to this point, but adding that most of the people from the user stakeholders can also understand the technical side, but not at the same level of technicians. The technical stakeholder agreed to this point.
- The user and technical stakeholder made a comment that it is difficult to give opinions on two short demonstrations. Live demonstrations would have been more appropriate and this was agreed by a technical stakeholder.
- A user and technical stakeholder commenting on why what is being presented is behaving in a particular way. A technical stakeholder agreed to the points that were raised.
- A technical stakeholder saying what they are trying to do is extremely difficult. There was agreement by user and technical stakeholder.
- A user stakeholder to change their involvement in work package 4. No objections were raised from any of the stakeholder groups.
- A user stakeholder reporting that finding the right contents for e-learning sites is difficult. There was agreement by user group stakeholders.
- A user stakeholder can hire someone to work more effectively on the project. There was agreement from a technical stakeholder who is also involved in the administrative side of the project.
- A user stakeholder mentioning that the project portal should include all the languages of the partners involved in the project. There was agreement from a technical stakeholder who is also involved in the administrative side of the project. Later on in the project all the languages will be included.
- A user and technical stakeholder saying by looking at e-learning course you can look at the problems encountered and to look at how voice can do things better. There was agreement from a technical stakeholder in the project.
- A user and technical stakeholder mentioning that there is no problem in using other peoples e-learning material in the portal. There is no other option in the development time that is available. There was agreement by user stakeholders.

Evidence of altered belief is examined next.

6.5.1 Displaying evidence of altered belief

Summarised now are the insights observed for interactions which resulted in growth in mutual understanding, but displaying evidence of altered belief. This is shown by stakeholder groups.

User and technical stakeholders

- Cannot give the technical stakeholders technical information on screen readers.
- Explaining that they would use a different term to the one suggested by the user stakeholder.
- There needs to be something to demonstrate to the users. The technical stakeholder said that the users must tell them what the tool can do for them.

- Will look at the trial to see the added value on own, but cannot understand why they cannot be told at the meeting what this added value is. Another user and technical stakeholder agreed to this point.
- Disagreeing to a user stakeholders proposal to change the project objectives. User stakeholder and technical stakeholders agreed that European Union projects are not run like this.
- Commenting that a suggestion made by a user and technical stakeholder made sense. Whereas a user stakeholder said it made no sense.
- Asking if anyone had experience to write a quality e-learning course. A user stakeholder disagreed that there was anyone in the project with this skill.
- Believing that this work package had 6 months work completed. However, a technical stakeholder saying there was only 3 months work done on it.
- Partner 8 webpage can be in voice. However, the technical stakeholder said only one page was necessary for the moment.

Technical stakeholders

- Asked for a manual which was not received. The user and technical stakeholder said that they had that manual in their office and could have e-mailed it to them.
- Sharing with the team the answers provided by the user stakeholder to be informed that what was interpreted was not entirely correct.
- Technical stakeholders reporting that form filling is difficult based on previous discussions to be informed by the user and technical stakeholder that this is not the case. Following this again there were discussions that form filling is a difficult activity for blind and visually impaired persons.
- Requiring a list from the users point of view for what is required. Informed by user and technical stakeholders that they have not used anything like this before. Another user and technical stakeholder agreed to this point.
- Would like comments on a document produced. There was a proposal to allow team members an opportunity to read it as it was only just received. The technical stakeholder would like to receive comments soon.
- Reporting that screen readers do not read lists properly. However, user stakeholders and the user and technical stakeholders said this was not true. This was interesting as two of the team members in the user stakeholders were blind.
- Asking if their goals are being changed and the user and technical stakeholder informing that they are not.
- To not explain to what point the tool will be developed to the commission. The user and technical stakeholder says he finds it unacceptable to not say what the change will be.

User stakeholders

- Providing information to assist the technical stakeholders, to be told this is the type of information which is required. However, the user stakeholder comments that this was already provided to them.
- Have not understood what the technical stakeholders have explained. Interestingly this comment came from a blind person.
- Informing the technical stakeholders that what they are being shown they already know and can see no progress on what is already available. Interestingly these comments were also from blind persons.

- Disagreeing with a technical stakeholder that screen readers can only read plain text. Interestingly this comment also came from a blind person.
- Disagreeing with a user stakeholder's proposal to work with one screen reader manufactuer. The user stakeholder agrees with the user stakeholder saying this was only an example they were providing to assist the technical stakeholders in their development.
- Informing everyone that the colours selected in the portal were based on an individual's needs who happens to be blind. The user and technical stakeholder said he found it hard to believe.

What was also interesting when looking at altered beliefs was the role that the translator played during a meeting. He had altered belief on what was being informed by the user and technical stakeholders.

No growth in mutual understanding is examined next.

6.5.2 No growth in mutual understanding

Now examined is no growth in mutual understanding by examining the different stakeholders involved in the project.

User and technical stakeholders
- Mentioning that does not understand the limits of the users requirement as still does not understand what the system is going to do.
- Stating that they are not moving beyond what screen reader technology can do or will do in the future. A blind user stakeholder agreed with this point.

Technical stakeholder
- Reporting that it was clear during the kick-off meeting and repeated at the first face-to-face meeting what the linkages between work packages 1 and 2 were.
- They are being asked to give the users something, however they do not know what to do.

User stakeholders
- There are details which are still unclear and there is a confusion as what expecting to be shown a new solution. Interestingly this comment was made by a blind person.
- What they are hearing is the same with a few limitations of what a screen reader can do. Interestingly a blind person also made this comment.
- Difficulties in understanding what the plug-in can do that a traditional screen reader cannot. Again, this comment was made by a blind person so is particularly relevant. Also, the user and technical stakeholders agreed on this point.
- Not understanding what the technical stakeholders are saying. A blind person also made this comment.

Interestingly, there was also evidence of no growth in mutual understanding involving the translator. In this situation the translator could not understand why there is a need to examine other applications and tools because MS Word could be used to author web pages. As mentioned before the translator was not

involved in the project, however, attended meetings to translate to partner 4. In this situation he was involved in the discussions without interacting with partner 4's team member.

6.5.3 Summary

This section has therefore shown the work of a multidisciplinary design team. It has focussed on the mutual understanding between different sets of stakeholders revealing that is necessary for all stakeholders to work together and to provide comments and suggestions on what is shared with the team. In this design team there were challenges encountered with not initially understanding the user needs, however, assistance was given from team members. At the end of the data collection period the project team had showed the technical work to the commission for the annual review and were informed that the project could continue after the first year. This shows that the work of this multidisciplinary design team was successful, yet challenging at times.

The next section provides an overview of working in a multidisciplinary project team.

6.5.4 Overview of working in a multidisciplinary team

This section examines the backgrounds of the participants who were seeking mutual understanding. The insights also identify occasions when there were difficulties in understanding the needs of visually impaired and blind people to sighted persons. This was a significant problem that the technical stakeholders encountered, often resulting in sub-state 5.1, particularly during the early stages of the team's interactions. Understanding the needs of visually impaired and blind people was important, as chapter 4 mentioned, the aim of this European project team was to develop voice based technology and a system for designing websites accessible to visually impaired users. Most of the user group stakeholders displayed experience and knowledge with working with blind and visually impaired people and understanding their needs, however, not all the technical stakeholders had comparable experience in this area. Appendix F, for team members that returned the completed questionnaire show what experience and knowledge team members have that was relevant to the project goals, aims and objectives.

Team members in this case study, the European research project team included members who were blind, visually impaired, and sighted. It was beneficial for this team to include team members with a visual disability because one of the goals of the project was based on prototyping technology for blind and visually impaired users. Thus by having blind and visually impaired persons in the project team first hand experiences could be shared with the rest of the team. However, analysis has shown gathering needs and requirements and sharing those needs and requirements with other team members at times was sometimes challenging. Transcripts in appendices G, I, K and M contain the full discussions. Also a visually impaired, blind and a sighted team member mentioned during the December 2001, face-to-face meeting that they have problems viewing PDF documents. Interestingly this request was not specific to blind and visually impaired team members as Lucy, a sighted team member, also commented on this point as well. Another interesting observation in this case study was the use of some team members to click their fingers to draw attention that they would like to take the next turn to speak. Sighted team members did not use this, often raising their hand instead to draw attention that they would like to take the next turn to speak.

Language was also a barrier for some, especially in relation to participation during the face-to-face meetings. In this case study English was used for all forms of team communication, despite partners

belonging to six European Union states. The English language was particularly difficult for Michael, from partner 4, whose first language was Italian and who always had a translator accompany him to the face-to-face meetings. This barrier was observed by the researcher and also mentioned by Michael during his telephone interview, which was conducted with the aid of an Italian speaker. Michael reported that often the translator did not have technical knowledge on the subject of discussion during the meeting, so felt that he may have been missing out on salient information that was shared during the meetings and the discussions that were taking place. Only in one meeting out of four, Michael's translator made a contribution to the meeting by sharing information that Michael had been working on. This contribution was reading out a report. Not only did a language issue seem to be the problem face-to-face, Michael sent very few e-mails to the project mailing list, suggesting that not only was Michael not comfortable in speaking English, but also writing it too. The small number of messages sent by Michael can be confirmed by looking at the tables summarising after each face-to-face meeting, who sent messages to the team. Problems and issues related to language barriers was not only restricted to the case study, but it can also be a common problem when working as part of a team (for example, Carmel, 1999). Although the language differences do not always have to be at the national level, differences can also be encountered due to working in multidisciplinary team where each unit or group may have their own specialised language or referral to terms in a unique way (Scaife et al. 1994; Rogers et al. 2000). In this investigation for example, Hazel referred to 'scenarios' a term commonly used in human computer interaction (HCI), and explained the meaning of it to Lucy and Annie. Both Lucy and Annie, who did not come from this background. Discourse chunk, *Partner 2 on work package 2*, 18/12/01 transcript, in Appendix G shows the utterances surrounding this issue.

Looking at the mutual understanding between different sets of stakeholders was interesting as the technical work for this project was proposed by partners 1 and 2 and partner 2 seemed to encounter difficulties understanding the needs of the user.

Examined next is a detailed analysis looking at having blind and visually impaired team members.

6.6 Having blind and visually impaired team members in the case study

In this team Paul, Ronnie, Morris, Kevin and Ned were blind. Desmond, Adam and Thomas were visually impaired. Table 6.2 summarises the meetings that the blind and visually impaired team members attended. A tick represents attendance at a meeting and a cross represents non-attendance at a meeting.

	1st meeting		2nd meeting		3rd meeting		4th meeting	
	Day one	**Day two**	**Day one**	**Day two**	**Day one**	**Day two**	**Day one**	**Day two**
Paul	v	v	v	v	v	v	X	X
Kevin	X	X	v	v	v	v	X	X
Ned	v	X	X	X	X	X	X	X
Ronnie	v	v	v	v	v	v	v	v
Morris	v	v	v	v	v	v	v	v
Desmond	v	v	v	v	v	v	X	X
Thomas	v	v	v	v	v	v	X	X
Adam	X	X	v	v	v	v	v	v

Table 6.2: Summary of attendance to the face-to-face meetings for blind and visually impaired team members

This section focuses on the interactions of blind and visually impaired team members in the case study. Any similarities and differences were also considered. Seven themes were examined – to communicate with the team; using Braille/talking about Braille; viewing information; interacting with technology/self-testing prototypes; reactions to the project; comments on the development work and supporting materials.

To communicate with the team is presented first.

6.6.1 To communicate with the team

This section is divided into four sub themes which were observed to be used to communicate with the team– clicking fingers; raising the hand; tapping the table and document formats.

The first theme to be examined is clicking fingers.

6.6.1.1 Clicking fingers

Paul and Morris who were blind clicked their fingers to draw attention that they would like to take the next turn to speak. The researcher only observed this during the second and third meetings. It is not known if Paul and Morris also used this method during the first meeting because the team was not notified that this was one of the method(s) that they were going to use. There was also evidence of persons clicking their fingers as well, however, their identity was not revealed. Overall, Paul clicked his fingers most often to draw attention that he would like to take the next turn to speak. No evidence was found on team members who were visually impaired clicking their fingers to draw attention that they would like to take the next turn to speak.

Although the team was not informed that some blind team members may use this method to draw attention that they would like to take the next turn to speak at the first meeting, it is not known if this method was brought to attention during the project's kick-off meeting. There was also no evidence of this method introduced in any of the documentations which were sent to the team.

There was evidence of Paul, Morris and other team members who were not identified taking the next turn to speak after clicking their fingers. There was also evidence of those team members, clicking their fingers, but waiting for acknowledgement from another team member before speaking. Sometimes acknowledgement was given and other times it was not. When no acknowledgement was received the team member sometimes said what they wanted to say, other times they did not say anything at all. It was interesting to observe that no visually impaired team members or sighted team members clicked their fingers to draw attention that they would like to take the next turn to speak. Therefore, observing Paul, Morris and other team members who were not identified suggests that not all blind members use this method. It was also interesting to note that Paul and Morris were from different organisations, so it is not because they were both familiar with those methods and were also using it as part of this teams interactions. In situations where acknowledgement was received this created mutual belief and characterised growth in mutual understanding.

Overall, it appeared that Paul and Morris were happy to click their fingers to draw attention that they would like to take the next turn to speak. However, in certain situations they did have to repeat clicking their fingers more than once. Sometimes clicking their fingers had to be supplemented by calling out a team member's name that they would like to take the next turn to speak, or to say themselves that they would like to take the next turn to speak. In other situations they started speaking straight away.

The next theme is raising the hand.

6.6.1.2 Raising the hand

Paul, Morris and Ronnie who were blind also raised their hand to draw attention that they would like to take the next turn to speak. No evidence was found on team members who were visually impaired putting up their hand to draw attention that they would like to take the next turn to speak.

Paul, Morris and Ronnie were observed raising their hand to draw attention that they would like to take the next turn to speak. This shows that clicking their fingers was not the only method that they used. As brought to attention in the previous sub-section sometimes Paul, Morris and Ronnie had to say out loud that they would like to speak or just started to speak because acknowledgement was not received. In other situations another team member said out loud saying that the person who raised their hand wanted to speak. In situations where acknowledgement was received this created mutual belief and characterised growth in mutual understanding. Although visually impaired team members were not found to use this method, sighted team members were. This shows that unlike clicking fingers to draw attention that you would like to take the next turn to speak which was only used by some blind team members, raising the hand was used by sighted team members as well.

The next theme is tapping on the table.

6.6.1.3 Tapping on the table

Ronnie who was blind tapped on the table to draw attention that he would like to take the next turn to speak. No evidence was found on team members who were visually impaired tapping on the table to draw attention that they would like to take the next turn to speak.

Like clicking fingers this method was not brought to the attention of the team. Therefore sometimes it was necessary to speak out loud that you wanted to take the next turn to speak because acknowledgement was not always received. In situations where acknowledgement was received this created mutual belief and characterised growth in mutual understanding. No visually impaired team members or sighted team members were observed using this method. Ronnie may use this method at his partner organisation and so was observed in the case study.

The next theme is discussing document formats.

6.6.1.4 Document formats

Ronnie and Paul who were blind commented on the use of PDF documents during the first and second meeting. Ronnie said that he had problems viewing PDF documents and Paul said that he preferred Word documents. However, Paul said that rather than the documents be unavailable to the team, they should be sent in the PDF format. There was evidence of Desmond who was visually impaired commenting on the use of PDF documents. He said that he preferred Word documents over PDF documents.

Ronnie and Paul who were both blind commented that PDF documents were not accessible to them. Desmond who was visually impaired also said this. However, what is interesting is that a sighted team member also said that PDF documents were not accessible to them. This finding shows that documents formats are not just important to blind and visually impaired team members who may use other technology to allow them to read what is written on the paper, but that sighted people can also encounter problems.

Overall, the researcher observed differences in the ways how blind team members and visually impaired team members drew attention that they would like to take the next turn to speak. That is only blind team members were found to click on the table to draw attention that they would like to take the next turn to speak, raising their hand and tapping on the table to draw attention that they would like to take the next turn to speak. No visually impaired team members were found to use any of those methods. However, similarities were observed with both blind and visually impaired team members stating their preference to have documents in Word format, rather than PDF. No matter what method that is used for communicating with the team, it is important to let the team know in advance what method(s) you are using in order for them to be acknowledged during the teams interactions.

The next theme is using Braille/talking about Braille.

6.6.1.5 Using Braille/talking about Braille

Morris who was blind explained to Jack, the project administrator, how the project logo would appear in braille. There was also evidence of Morris using his Braille machine to show how the logo would appear. Ronnie and Morris who were both blind and another person whose identity was not revealed used their Braille machine during the meeting to record notes as well. Evidence was found on Desmond who was visually impaired team members talking about Braille devices in his presentation with Morris. When talking about Braille devices there was evidence of mutual belief characterising growth in mutual understanding.

Overall, there were similarities observed with blind and visually impaired team members when using or talking about Braille. Only some of the blind team members were observed using or talking about Braille. This may suggest that blind people are more likely to use Braille devices than visually impaired people are. One of the differences was that although there was evidence of visually impaired talking about Braille devices, there was no evidence of them actually using it. Another interesting observation was when a sighted team member said that they knew how to read Braille even though there was no evidence of them using Braille during the face-to-face meetings. There knowledge of reading Braille may have come from working at a large charity in the UK serving the needs of blind and partially sighted people.

The next theme is viewing information.

6.6.1.6 Viewing information

Morris who was blind during the second meeting said that he could not read the presentation slide that was being presented. There was also evidence of him at the third meeting explaining what Thomas was doing for the benefit of those team members who could not see.There was evidence of Thomas who was visually impaired at the second meeting asking Mary to go back to the previous slide which was being presented. At this meeting Desmond also asked Charles to zoom in on a presentation slide and made a request for the font size to be enlarged. These situations showed evidence of mutual belief and characterised growth in mutual understanding. Desmond was also observed trying to look at the brochure which was distributed. At the third meeting Desmond commented that what was being shown was not accessible. Morris was also found translating for Adam who was blind, sharing with the team that Adam was saying that the combination of colours used suited his needs and that selecting colours that best suits your needs is particularly important for partially sighted people. Adam also said that he understood that you would have a problem if dark text were used.

Morris who was blind commented during the meeting that he could not read what was presented. It is not known if this was said to humour the team. The team was aware that Morris was blind because he used a stick. Although this situation characterised growth in mutual understanding it shows evidence of altered mutual belief when Morris said that he could not read the information that Mary was referring too. It was interesting to see that Morris was explaining what Thomas was doing for the benefit of those team members who could not see. This may be as a result of Morris having exceptions that when you cannot see something it should be described. By doing this enabled the team to receive information despite having a visual disability.

There was evidence of Thomas and Desmond who were visually impaired making requests to go back to a previous slide, asking for font size to be enlarged and for the material being shown to be zoomed in. This suggests that visually impaired people do have special needs which need to be taken care of when they are being shown presentations. When making requests to return to a previous slide there was evidence of mutual belief characterising growth in mutual understanding.

Although there were no requests of sighted team members making those requests they do not appear to be ones which are only applicable to visually impaired team members and may be used by sighted team members as well if the need arises. Adam providing information from a visually impaired person's point of view was also very useful. Especially for those that have never worked with or produced something to be used by visually impaired and blind people.

Overall, there were similarities observed with blind and visually impaired team members viewing information. That is both groups had difficulty viewing the information. Differences were found as well. Blind team members were not able to see the information at all, and visually impaired team members took longer to read the information which was presented. To accommodate the need of visually impaired people the text was also required to be in a larger font size. The observations in this section highlights that if you have team members with a visual disability at the start of the teams interactions it is important

that the team is notified of action by those people which can be taken to support them in receiving information from the team.

The next theme is interacting with technology and self-testing prototypes.

6.6.1.7 Interacting with technology/self-testing prototypes

Paul who was blind at the first meeting asked who would like hands-on work with the technology, which had been demonstrated to them. He also said that for future meetings things should be planned differently if there is a need to look at technology. This is because looking at demonstrations was a waste of time for some people. However, Paul did realise that some people needed to know the technology and to look at it, but what was done for this meeting was not the way to have dealt with it. There was also evidence of Ronnie who was also blind at the first meeting saying that the exercise of looking at the technologies was not for everyone. He said that those that need to look at it should be asked.

There was also evidence of Paul at the second meeting asking if what was being shown could be accessed by him so that he could go to a website and to try out what was being proposed by switching off his screen reader. Paul had also agreed to Hazel's proposal that he might like to try the form out. At the third meeting there was also evidence of Paul asking if what was demonstrated was available somewhere so that he could try it out with his screen reader. This is because he was interested to find out what a screen reader would do in that situation. These situations showed evidence of mutual belief therefore characterising growth in mutual understanding.

There was evidence of Desmond who was visually impaired at the first meeting agreeing with Charlotte's proposal to let people interact with the technology. At the second meeting Desmond asked about the tool and Mary said that it could be downloaded from the website and that there were links to it in the report as well. Evidence of this mutual beliefs in these two situations characterised growth in mutual understanding.

Paul and Ronnie who were both blind expressed similar views that the exercise of looking at the technology was not one that was for everyone. This may be because what was being shown was already familiar to both Paul and Ronnie. However, it was interesting to see that both Paul and Ronnie did realise that some people do need to look technology, but that they should not assume that everyone needs to, therefore should ask who would like to look at it or needs to look at it. Paul also showed that he would be interested in testing out some of the demonstrations which were being shown. Desmond who was visually impaired also showed an interest in testing out material which was included in a report.

Only Paul and Ronnie felt the need for team members to be asked if they required to look at the demonstrations which were being shown. Desmond who was visually impaired agreed that team members should be given an opportunity to interact with the technology which was demonstrated to them. It was interesting to observe that sighted team members were interested in examining the technology and that the partners that were providing technical contributions to the project showed a large interest in this activity as well.

Overall, there were similarities observed with blind and visually impaired team members interacting with technology and self-testing prototypes. Both blind and visually impaired persons saw the need to let people work with the technology which had been demonstrated to them and to test what was being shown to them in their own time. There were also similarities in the comments by Ronnie and Paul who were both blind and said that the exercise of looking at the technology was not for everyone. This may be because they were both familiar with what was being shown.

The next theme is reactions to the project

6.6.1.8 Reactions to the project

Paul who was blind at the first meeting said that he had mentioned at the kick-off meeting in Madrid that he still did not understand the necessity to put emphasis on developing a web authoring tool as there were already lots out there. He also said that even if an accessible authoring tool was made, it is questionable who would use it because there is a choice for people. As suggested in Madrid he felt that the idea to develop a web authoring tool should be dropped, or put on a back burner. There was evidence of altered mutual belief characterising growth in mutual understanding and in some situations the altered mutual belief transferred to mutual belief.

There was also evidence of Ronnie who was blind at the first meeting mentioning that the project was very interesting and may have interesting developments for blind and visually impaired people. He spoke about how to take advantage of respective experiences of team members and made suggestions that more emphasis be placed on the e-learning part of the project. Ronnie also said that this tool should be used to choose and create e-learning material and nobody should forget that this project was more an academic demonstration project than a real technical and practical solution. Ronnie also explained that the project was useful and important for those that did not use the keyboard and the telephone and that if the authoring tool was commercialised, it could be useful for elderly people and other people with disabilities. At the second meeting Ronnie said that the project had good possibilities to develop and him checking his understanding on the project. That is the tool should integrate screen readers and give blind people the possibility to sit in front of a computer and to have an interactive dialogue with the computer. No evidence was found on reactions to the project from visually impaired team members.

There was evidence of Paul and Ronnie who were both blind making suggestions on how to improve the project. There was no evidence of visually impaired team members providing any reactions to the project. Sighted team members also provided mixed reactions. However, it was important that the contributions by the blind and sighted team members were taken on board as they all have experience in that area.

Overall, there were differences in opinions between Paul and Ronnie who were both blind. Ronnie commented that the project had interesting potential, whereas Paul could not see why there was a need to concentrate on authoring tools. Ronnie also commented that the project could be useful for elderly people and people with other disabilities as well.

The next theme is comments on the development work.

6.6.1.9 Comments on the development work

Ronnie who was blind at the first meeting agreed with Hazel that they should not spend so much effort on the development of the prototype, also proposing that a blind specialist tests and evaluates the system.

At the second meeting Ronnie asked James to explain to a totally ignorant person what he meant when talking about making a page accessible in VoiceXML. He also said that what had been developed was not understood, so no comments could be made and that the technicians were showing them something that they already knew very well, mentioning that they were experts and saw screen readers and worked with them daily. He also said that unless something innovative was shown to the commission they would not accept the continuation of the project and that where they were now was not novel. Ronnie also agreed with Kenneth that they were not trying to voicify what was on a graphical user interface. Ronnie commented that what was being presented was something which already existed. Questions regarding innovation were also raised.

At the third meeting said that he was expecting a new solution incorporating existing tools. He also said that they were not expecting the new system to be competing with screen readers at their level, but they were expecting an upgrade from what they already had. That is the tool should offer more than what existing technical and software solutions already offer.

There was also evidence of Paul who was blind at the second meeting questioning the voice input for speech recognition. He was asking if the technicians were using their own, and if so, why, because what they were doing had already been done. Dragon was used as an example. Paul also said that what they were being shown was daily bread and butter for blind people, as that is what they do all day. A comment was also made that what was being demonstrated and shown was already available and could be done by a screen reader.

At the second meeting Paul said that what they were getting was not anything different, and there was nothing that they have not seen or done before. On the first day of the two-day meeting Paul had already said that for the time being he could not see any progress from what they already had. Paul had disagreed with Annie when she said that screen readers only read plain text. He also told Annie that filling out forms using screen readers was not difficult and that he fills out forms daily on the Internet. Paul also said that a server based screen reader was not needed, just a tool for VoiceXML and not a plain authoring one. Paul also said that based on what Mary had presented on the previous day, there were partly accessible tools out there, so that the partners undertaking the development work did not have to develop a completely new authoring tool for HTML.

At the third meeting Paul said that what they had been hearing was exactly the same, with a few limitations of what a screen reader could do and that what they were being shown was less than what they already have. Paul also agreed with Kenneth when he said that they were not moving beyond what screen reader technology could do or what screen reader technology would do in the future. He also said that Charles had laid out a nice array of requirements for the authoring tool. However, Paul proposed

including an index of keywords. Paul mentioned that the written manual should be on CD-ROM, Braille or on tape as well.

There was also evidence of Morris who was blind at the first meeting suggesting that learning a language might be a possibility to consider. At the second meeting Morris proposed to the technicians that they find something where natural interactivity can be shown. At the third meeting Morris said that there appeared to be problems with what the plug-in could do and what a traditional screen reader could not.

There was evidence of Desmond who was visually impaired at the first meeting agreeing with Hazel that e-learning material must be interactive. At the third meeting Desmond said that what he saw with the demo in the morning with the Conpalabras plug-in, shows that the technical developers were inventing the wheel for the second time. This situation shows evidence of altered mutual belief characterising growth in mutual understanding. Desmond also said that technical people did not have to do so much work, as there are existing things already. There was also evidence of Desmond translating on behalf of Kevin who was blind, saying that VoiceXML had to start at the point where a screen reader was passive.

Ronnie, Paul and Morris who were blind provided comments on the development work. Their comments would have been very useful, as they were blind and may have shared information with the team based on their experiences. One observation was that Paul and Ronnie provided more comments than Morris. It was interesting to observe that when Ronnie provided comments on the development work evidence of growth in mutual understanding was characterised, but there was evidence of altered mutual belief. Some examples are mentioned here. Once when Ronnie said that you would never understand how a screen reader works if you do not exactly know the technical specification. Two when Ronnie said that he believes a perfect technical knowledge comes before consideration of the user requirements. However, a sighted team member disagreed with this comment. Following this disagreement, there was evidence of Desmond agreeing with this team member therefore showing evidence of mutual belief. Four when Ronnie disagrees when a sighted team member said that she thought they were building a new system. There was also evidence of altered mutual belief when Paul provided comments on the development work too. For example, when he said that what was being demonstrated is something which is already available. There was also evidence of growth in mutual understanding being characterised by sharing comments on the development work. However, it appears that there was more evidence of altered mutual belief than mutual belief when sharing comments on the development work which was being shown.

Desmond who was visually impaired also provided comments on the development work. There was also evidence of him translating of behalf of Kevin who was blind. It was interesting that Desmond agreed with proposals made by sighted team members who made relevant comments on the development work. The comments from Desmond like Ronnie, Paul and Morris would also be useful as they may be based on knowledge and experience which sometimes cannot be gained by just reading information.

Overall, there were similarities in opinions amongst Ronnie and Paul, who were both blind, commenting on the development work, and saying that what was being proposed was not novel and nothing new to what was already available. This was raised throughout different meetings, showing that their reactions were not changing over certain meetings. There was also evidence of some blind team members

providing suggestions on what could be done to make progress in the technical work which was being done.

The next theme is team members providing relevant supporting materials.

6.6.1.10 Supporting materials

Ronnie who was blind at the first meeting said that it was good that Hazel would be presenting work on considering the needs for e-learning for visually impaired students. He also said that it would be advantageous to look at Blackboard as it addressed accessibility. A comment was also made that you would not understand how a screen reader works if you did not know the technical specification. Ronnie also said that the technicians must have perfect technical knowledge on different screen readers too. There was evidence of Ronnie agreeing with Kenneth that there was nothing to stop the technicians from contacting Jaws and that the technicians had to be specific about what information they required. Ronnie had also said that the technicians must know in detail screen readers, how they work and the technical specifications. A request was made to the team to consider the proposal that had been made on the first day of the two-day meeting, that is to liase and have a practical understanding of what screen readers can do, shown by blind people. Ronnie said that you need perfect technical knowledge before you can consider user requirements as well. He also said that the developers should have an idea, make a prototype and then ask the users. There was evidence of Ronnie agreeing with Ben that it was difficult for blind people to pick out information on websites. It was also too expensive, difficult and time consuming to produce websites for blind people only. Ronnie also said that blind people do not normally navigate much on the web, as it is slow for the users.

At the second meeting Ronnie had mentioned that the technicians were not completely aware of what blind people were doing using a screen reader. A suggestion was also made to Annie saying that they get in contact with Homepage because they will show her in their own language, the living reality of working with blind users and what they can do with screen readers. Ronnie had also agreed with Lucy's proposal that it would be useful to continue looking at e-learning and to see if it is interesting for blind people or not. Ronnie also suggested organising a technical meeting with user groups and agreed with Charles that the innovation was in mobile browsers, as this does not exist.

There was also evidence of Paul who was blind, along with Desmond who was visually impaired giving a short presentation on visually impaired people at the first meeting. Paul had said that it would have been nice to have had input on screen reader products that were only nationally available. To make the overview that they were working on more complete a request was made for this information to be sent to them.

At the second meeting Paul had said that he found it time consuming and unnecessary to have information typed in, to be repeated back to you. However, he did understand that it was important to have this when voice was used and not the keyboard. There was also evidence of Paul agreeing to Mary's proposal, to re-design the Mindleaders page using VoiceXML and then to compare it to its original page. Paul had also said to Annie that it was not true when she said that screen readers could not read lists properly and telling

Annie that you could enter a search command using the screen reader if you knew where you were going. Paul also said that they need something which enhanced e-learning content. There was evidence of Paul agreeing with Hazel that it was important to find out what was currently lacking and to build from there as well.

At the third meeting Paul had said that he needs applications to be easier to use. He also gave the team the names of accessible screen readers. There was also evidence of Paul translating for Kevin, saying that screen readers and screen reader technologies allow visually impaired people to work and that it takes a lot of training effort to give visually impaired people the opportunity to make effective use of the technology that you already have. On behalf of Kevin, Paul also said that special web tools have made it relatively easy for visually impaired people to use the web effectively.

There was evidence of Ned who was blind at the first meeting informing the team that Super Nova was not yet Internet ready, but was getting there. There was also evidence of Morris who was blind at the first meeting sharing with the team that he had been looking at e-learning websites and found selecting the right content difficult. There was also evidence of Kevin who was blind at the second meeting disagreeing with Annie when she said that a screen reader could not read lists properly.

There was also evidence of Desmond who was visually impaired at the first meeting, agreeing with Hazel when she said that Frontpage did not have e-learning support. He also agreed with Morris, who was blind, that finding the right e-learning content was difficult. There was also evidence of Desmond agreeing with Ronnie who was blind, that users should be shown a prototype for their comments. Desmond also agreed with Hazel when she proposed to create a Wizard of Oz prototype and agreed with Annie, a technical developer that a prototype should be shown to the users. Desmond had also said that he had the technical information to give the developers. A comment was also made that he could not believe the technicians did not have knowledge on the requirements for the development. Desmond had also agreed with Kenneth when he proposed that research must be undertaken before making assumptions. He also agreed with Ben to find out what is lacking from current screen readers and recommended the Homepage reader, which offers a 30-day free trial. However, this information had already been provided on the second day of the first meeting.

At the second meeting Desmond said that some screen readers switch to forms mode. At the third meeting he gave Annie an example of how to interact with a screen reader and agreed with Paul that they should not just go and work with one screen reader manufacturer.

There was also evidence of Adam and Thomas who were both visually impaired at the second meeting giving a presentation on e-learning. Adam mentioned that he has problems with constructing tables. Thomas had said that Flash was not accessible to visually impaired people. At the third meeting Morris who was blind, translated for Adam saying that it was possible for a blind user to navigate using the keyboard.

During the face-to-face meetings evidence of mutual beliefs was found characterising growth in mutual understanding. This was observed when ideas were shared with the team.

Ronnie, Paul, Ned, Morris and Kevin provided supporting material to assist with the development work which was being carried out by the technical partners. Out of these five team members Ronnie provided the most supporting material, followed by Paul. The materials which were provided would have been relevant to the technical partners as they would have come from personal experiences and not just from what is reported in literature. Desmond, Thomas and Adam who were visually impaired also provided supporting material to assist with the development work. Like the supporting material provided by the blind team members, the supporting material provided by visually impaired team members would have been useful as well. It was interesting to observe that sighted team members provided supporting materials too.

Overall, there were similarities in that both blind and visually impaired team members provided information to other team members. Some of this information was particularly relevant as it was based on needs and experiences of blind and visually impaired people. This information was also relevant to the development work being undertaken by the technical partners of the project. The differences observed were that blind team members provided more information than visually impaired team members. However, no conclusion can be reached why this was observed.

The next theme is sharing information on conferences and events.

6.6.1.10.1 Sharing information on conferences/events

There was evidence of Ronnie who was blind at the first meeting saying that he would send information on a conference to Jack. He had also informed Jack of a conference on people with disabilities. At the second meeting Ronnie told the team that he was a member of SEN and a e-accessibility group. At the third meeting Ronnie said that he would make sure that Fabian receives an invitation for the SEN ISSS meeting. Also, to see if there could be an opportunity to present the project at this meeting. Here, Ronnie had guided Fabian to also look at the website of The Institute of Design and Disability. Ronnie also said that he could distribute information and material on the project at this meeting, at the market session regarding disability issues. This event was to take place in Austria. At the fourth meeting Ronnie had informed the team that he gave information on the project at the workshop Design for All at SEN ISSS.

There was also evidence of Morris who was blind at the first meeting informing Jack of a conference on people with disabilities. At the fourth meeting Morris had said that there was a conference that they had attended on specialised aspects of e-learning and that blind people appreciate the event that they are arranging.

There was also evidence of Paul who was blind at the second meeting checking with Hazel what paper she was referring too. He also asked if the paper would be available electronically.

No evidence was found on visually impaired team members sharing information on conferences and events.

Ronnie, Morris and Paul who were blind provided information to the team on conferences and events which were being held. Ronnie sent the most messages. It is important that they sent information on those areas as some may only be known if you belong to that community, so by sharing information with the team relevant information was being passed on. There was no evidence of visually impaired team members sharing information on conferences and events. However, there was evidence of sighted team members providing information on conferences and events.

Overall, there were similarities amongst the types of information blind team members were providing on events, conferences and workshops. This was relevant information, particularly in terms of disseminating information on the project to other people. Here, some team members may not be aware of events, conferences and workshops, especially those that are small and specialist.

The next theme is communicating by e-mail and sending comments.

6.6.1.10.2 Communicating by e-mail – sending comments

There was evidence of Ronnie who was blind sending message *13* after the first meeting, with comments on the questionnaire on unmet learning needs of visually impaired people. In message *14*, sent by Thomas who was visually impaired after the first meeting, he included his comments on this questionnaire. In message *3* sent by Desmond who was visually impaired after the first meeting, comments on the workplan were sent. In message *7*, sent by Adam who was visually impaired after the third meeting, comments on the requirements for authoring tool were sent.

Ronnie who was blind sent comments to the team. So did visually impaired team members, Thomas, Desmond and Adam. The most messages came from team members who were visually impaired. It is important that comments are shared with the team as they can help to develop the work which is being undertaken. There was also evidence of sighted team members sending comments to the team as well through e-mail.

Overall, there were similarities in that both blind and visually impaired team members sent comments on issues which were relevant to blind and visually impaired people. This can be particularly relevant as those comments have come from people who are themselves blind and visually impaired. The differences were that more visually impaired people sent comments than blind people. However, no explanation can be offered on this difference that has been observed. It is also important to note that when messages were sent to the team this created growth in mutual understanding.

The next theme is answering questions.

6.6.1.10.3 Communicating by e-mail – answering questions

No evidence was found on blind team members answering any questions. However, there was evidence of Desmond who was visually impaired team, sending message *18*, after the first meeting, answering questions on Jaws. In message *10*, sent by Adam who was visually impaired after the first meeting, answers to the questions on the requirements for the authoring tool were sent.

No blind team members answered questions. Only Desmond and Adam who were visually impaired did. It is important that answers are given to any questions which are asked by whoever can answer them. There was also evidence of sighted team members sending messages to the team on answers to questions which are asked.

Overall, there were differences in that only visually impaired people answered questions. However, no explanations can be offered on this difference.

The next theme is providing supporting material.

6.6.1.10.4 Communicating by e-mail – supporting material

No evidence was found on blind team members providing supporting material. However, there was evidence of Thomas who was visually impaired sending message *6*, after the first meeting, with his report and conclusions on problems encountered by visually impaired people on websites. In message *29*, sent by Thomas after the first meeting, his conclusions and comments about finding possible solutions to the accessibility problems with the project vision and VoiceXML were sent. In message *30*, sent by Adam who was visually impaired after the third meeting, everyone was informed that Opera proposed a free complete version of their browser to visually impaired people and the visually impaired community.

No blind team members providing supporting material. Thomas and Adam who were visually impaired did. It is important that any material which can support other members in teamwork is shared. Although no blind team members provided supporting materials through e-mail, they did during the face-to-face meetings. There was also evidence of sighted team members sending supporting material to the team.

Overall, there were differences like the previous two themes between the type of information provided by blind and visually impaired team members. In this theme only visually impaired people provided relevant information to the team. However, it is important to note that when messages were sent to the team this created growth in mutual understanding.

The next theme is sharing information on conferences and events.

6.6.1.10.5 Communicating by e-mail – sharing information on conferences/events

There was evidence of Ronnie who was blind sending message *1*, after the second meeting, with an announcement for a conference. In message *52*, sent by Morris who was blind after the third meeting, information on the LearnTech 2003 conference was sent. No evidence was found on visually impaired team members sharing information on conferences and events.

Ronnie and Morris who were blind sent messages on conferences and events. They also provided information on this during the face-to-face meetings as well. It is important that information that is shared during the face-to-face meetings is sent by e-mail so that people have a written record. Also, any new information which is found after the face-to-face meetings should be shared by e-mail as well. There was no evidence of visually impaired team members sending messages on conferences and events. However,

there was evidence of sighted team members sending information on conferences and events to the team as well.

Overall, there was a difference in that only blind team members shared information on conferences and events. Visually impaired team members did not send information on conferences and events. This may be because events and conferences for the two groups are the same; however, this cannot be confirmed.

The next theme is placing the portal online.

6.6.1.10.6 Communicating by e-mail – placing the portal online

There was evidence of Morris who was blind sending message *30*, after the third meeting, asking when Conpalabras would be installed in the project portal. He also said that the evaluation of the portal was underway.

In message *8*, sent by Adam who was visually impaired after the second meeting he said that the portal was online and that comments and suggestions were welcome. In message *49* sent after the third meeting, Adam thanked Erin for finding a bug in the portal. In message *1*, sent by Adam after the fourth meeting, he said that he had incorporated all of the requirements. He also said that version 0.2 of the portal was online. In message *6*, sent by Adam after the fourth meeting, he said that the portal met the AAA accessibility standards.

Morris who was blind sent a message on the portal. However, Adam who was visually impaired sent the most messages concerning the portal. However, this may have been because he was working on the portal. This was an interesting observation as Adam was visually impaired. However, this shows that with the right tools visually impaired people can work with technology and produce results. There was also evidence of sighted team members asking questions on the portal as well.

Overall, the similarities are that blind and visually impaired team members sent messages regarding the portal which was being developed. The differences are that there is evidence that Adam who was visually impaired was working on the development of the portal, but no evidence of blind team members doing this. Observing Adam doing this is particularly significant as the project is developing technology to be used by blind and visually impaired team members.

Examined next is Mulder's categories or aspects.

6.7 Mulder's categories or aspects

In addition, the analysis reports evidence of Mulder's (2000), four categories or aspects by which group members update their mutual understanding, when working in a technology mediated group interaction. Mulder's four categories or aspects in table 6.3 and table 6.4 shows the specific coding Mulder (2000) used for each. As already discussed in chapters 2 and 4, Mulder did not provide a definition of the term mutual understanding in her work. However the researcher felt that it would be interesting to identify which of her categories or aspects appear over time in the European research project team, which was chosen to monitor the evolution of mutual understanding.

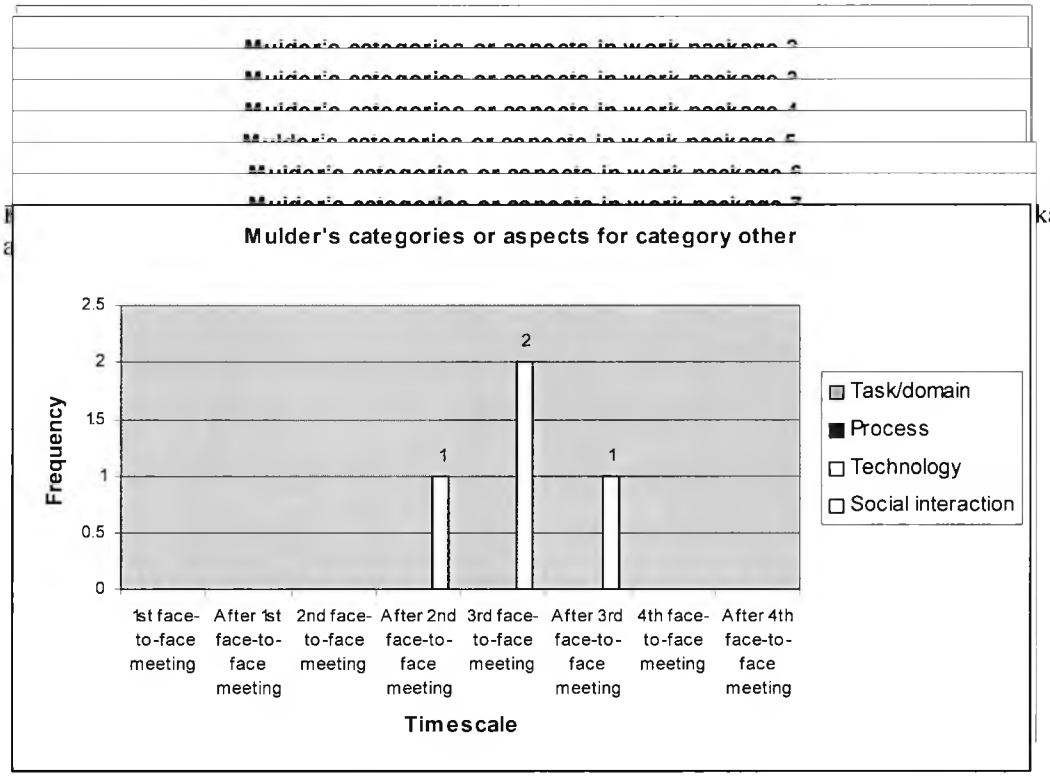
Category or aspect	Summary
Task/domain	Involves the task and the project description
Social interaction	Does not involve the task, but more personal and cultural utterances
Process	Planning of a next meeting and structuring the current meeting
Technology	Utterances related to technology use or media choice

Table 6.3: Mulder's four categories or aspects by which group members update their mutual understanding

Task/Domain	Social Interaction	Process	Technology
Project description	Personal traits	Planning next meeting	Communication technology use
Goals	Role in project/team	Structuring current meeting	Communication tool breakdown
Design principles	Expectations of project/team		Other
Material use	Background		
Steps within task	Other		
Task-specific technology use			
Other			

Table 6.4: Mulder's specific coding used for the four categories or aspects

Figure 6.17 shows potential evidence of the different categories or aspects found within each package and category other.



kages 1-7

It was not surprising to see that one discourse chunk could be related to more than one of Mulder's (2000) categories. One discourse chunk could contain more than one category or aspect because the analysis was looking at the entire chunk, and not by utterances as Mulder did in her analysis. Contents of the themes ranged in size from a few lines to several 100 lines.

The three most frequently occurring categories or aspects were task/domain, social interaction and process. *Task/domain* was commonly found in the empirical data which was collected. Again this was not surprising as the interactions which were taking place face-to-face and via e-mail were looking at interactions involving the task. *Social interactions* were quite high in number as well due to the project being a European research project, requiring information to be sent to the commission. *Process* was also present as at each meeting as there was time dedicated in planning the next meeting and there was evidence of structuring the current meeting too in order to meet the needs of team members.

Insights presented in this chapter show that during the face-to-face meetings and via e-mail messages sent to the team, a number of chunks were directly related to the aims and objectives of the project as outlined in chapter 4, but also administrative issues which were part of European research projects and also need to be handled. E-mail messages also identified a higher number of technology category or aspects, particularly as a result of team members informing everyone that they had placed documents onto the FTP site.

Mulder et al. (2002) had also reported interesting results based on four kind of interactions, task/domain (content); social interaction (relation); procedure and technology, which were based on 11 meetings. Mulder and her colleagues found that task-related utterances were predominant in the project that they were collecting data on. Little evidence of social interaction was found, and interestingly this was often near the end of the video meetings. However, the number of utterances devoted to social interactions did increase during the project. Number of utterances devoted to process related interaction decreased during the project. Lastly, concerning technology, very few utterances looked at this type of interaction, reasons included that the team had already defined their specific way of communicating early on in the project. Later in the project, the team did try to use other technologies. Results of Mulder et al. (2002) show that perceived levels of shared understanding (used interchangeably with mutual understanding) increased during project work. Mulder and her colleagues also believed that the successful project completion could be seen as evidence for the increasing levels of shared understanding. Early work by Mulder (for example, Mulder, 1999; 2000a) also outlined that during group work the understanding of content, each other and process evolves moment-by-moment and changes as progress is made in the group and the work gets done.

The analysis performed in this investigation confirms that the understanding of content, each other and process evolves moment by moment and as changes and progress is made in the work. Figure 7.2 also confirms this where each package and category other is individually shown showing the understanding of each of the four categories or aspect in that work package or category other.

Cramton's problems are examined next.

6.8 Cramton's problems

As chapter 4 already discussed, identifying evidence of those 5 problems in this data is not related to the re-definition for mutual understanding, or the states and sub-states, in chapter 3 which were characterised for monitoring purposes. The researcher is looking for potential evidence of Cramton's problems as she thought it would be interesting to observe in what situations those problems occur in a multidisciplinary team that communicates both face-to-face and using e-mail.

Failure to communicate contextual information By definition, members of a dispersed teamwork from different locations. Sometimes they also are members of different organisations. Accordingly, there may be important differences in the contexts in which they operate. However, it proved to be difficult for team members to gather and retain information about the context in which their distant partners worked. Team members often failed to communicate important information about their own context and constraints to their remote partners. The teams involved in the project, including the dispersed faculty team, sometimes failed to recognise differences across sites in deadlines for deliverables, evaluation criteria, and the timing of spring breaks.
Difficulty in communicating the salience of information Teams encountered problems that hinged on difficulty in communicating the salience of information. Writers often assumed that what was salient to them would be salient to their readers. Tone of voice, facial expressions and body language add meaning to communication. Electronic communication proved to require skills for directing attention that many team members did not have. For example, when e-mail messages addressed several topics, partners sometimes differed in which they found most salient.
Unevenly distributed information Unevenly distributed information interferes with team-level collaboration and can cause problems in relationships. Two causes were errors in e-mail addresses and failure to send copies of mail to all members. Different perspectives exist between members because of the differences in the information that they have received. Problems stemming from unevenly distributed information was not limited to cases involving error in addressees and undelivered mail. Sometimes people knew they were exchanging mail with only a part of the team, but failed to understand how that affected the perspectives of team members who did not receive the mail, or how it affected the dynamics of the team as a whole.
Differences in speed of access to information Differences among team members in their speed of access to information. Some members have 24 hour access to e-mail, while others do not. If some members see e-mail only once a day, this limits the amount of interaction that is possible, and slows the pace of the team. A variation of this issue is concerned relative differences in the speed of electronic transmissions among parts of the team.
Difficulty in interpreting the meaning of silence One of the biggest challenges team members faced was interpreting the meaning of their partner's silence. Silence due to technical problems or faulty information sometimes was often misunderstood as intentional non-participation.

Table 6.5: Cramton's five problems in dispersed collaboration

Work package 1 is examined next.

6.8.1 Work package 1

Table 6.6 presents the potential problems which were found when discussing work package 1 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 1st face-to-face meeting	
Change to the agenda (17/12/01)	*Difficulty in communicating the salience of information.* This was observed when Ronnie reported that the morning's meeting had been a waste of time to him. This situation shows that there were differences amongst the salience of what the administrative co-ordinator of the project believed team members would find interesting and useful, and the reaction of team members like Ronnie who had reported that they did not find the meeting contents useful.
Developing a plan of future work (18/12/01)	*Unevenly distributed information.* This was observed when Hazel proposed work to team members who had already left the meeting. However, Hazel was going to place the plan onto the FTP site, so that everyone could access it.
Textual chunk after the 1st face-to-face meeting	
Detailed work plan for the next 3 months (Typed up plan discussed during the second day of the face-to-face meeting)	*Difficulty in communicating the salience of information* and *Difficulty in interpreting the meaning of silence.* The first problem was observed in message 7 sent by Hazel on 11/1/02, where she mentioned that she had added in the changes Annie proposed, but did not understand why they were necessary. This message highlighted that the salience for requesting the change was higher to Annie than Hazel. The second problem was also observed in message 7, when Hazel mentioned that she did not know if the messages that were being sent were being received or not by partner 4 as they had not acknowledged her messages.
Report on problems encountered by visually impaired people on websites	*Unevenly distributed information* and *Difficulty in communicating the salience of information.* The first problem was observed when Thomas sent message 6 to the team, informing them of the report he attached to the message. Thomas apologised that this document was in French. As everyone may not be able to read French, relevant information was not evenly distributed to team members who may have been interested in the report. Message 6 can also be used to show potential evidence of the second problem. Salience for the usefulness of the attachment contents on the report sent by Thomas was higher for him than possibly to some of his receivers, as everyone in the team may not read French.

Protocol of evaluation for e-learning	*Difficulty in communicating the salience of information.* Message *25* sent by Hazel on 7/2/02 suggested that the salience of the message Desmond had originally sent to Hazel on a one-on-one basis was higher for him than to Hazel the receiver. This highlights the need to write clear messages.
Discourse chunk from the 2nd face-to-face meeting	
Informing of late arrival (14/3/02)	*Unevenly distributed information.* This was observed when Hazel informed Jack that they could start the meeting without Mary, who was going to be late arriving. In this situation, Mary may have missed some of the information, which was communicated to the team in her absence. However, Mary had arrived by 10am and did not miss a lot of the meeting.
Review of work package 1, Questionnaire data gathered (14/3/02)	*Difficulty in communicating the salience of information.* This problem was observed after Hazel informed the team that the response, which was received, had been less than the target expected. Only the German partners had responded. She was hoping to receive information from partners 3 and 4.
Overview of the evaluation sessions (14/3/02)	*Unevenly distributed information.* This was observed when Mary said team members could see the questions, which were included on the presentation slide. However, for those team members that were visually impaired and blind, this would not have conveyed salient information to them. Mary should have read out some examples.
Overview of circulated report (14/3/02)	*Unevenly distributed information* and *Difficulty in communicating the salience of information. Unevenly distributed information* was observed when Mary asked team members if they could read what was included at the bottom of the presentation. Hazel said yes, Morris said no. This situation suggests that unevenly distributed information was presented to some team members. Morris was blind so he would not have been able to see the information even if it had been well presented . Difficulty in communicating the salience of information was observed when Mary mentioned the term *'accessible templates'* and the translator had to ask on Michael's behalf what was meant by the term *'template'*. Charles also questioned what the term *'accessible templates'* meant. In this situation the salience of the term was higher for Mary then to other team members.
Discourse chunk from the 3rd face-to-face meeting	
Presentation on work package 1 (7/6/02)	*Difficulty in communicating the salience of information.* This was observed in three situations in this theme. One, a request from Ronnie for Erin to speak clearly as English was not their first language. Salience was far higher for Erin who thought that she was clearly presenting an overview of their work on work package 1, than to other team members, particularly those that did not use English as their first language. Two, when Desmond requested Charles to enlarge the font size on his presentation slides. Salience for font size was higher for Charles the presenter, than for the rest of the team. Desmond was visually impaired. Three, when Charles informed the team that he could not understand why no one responded to his first request for comments, when he circulated the document to the team a month ago. In this situation the salience for the request was higher to Charles than the rest of the team.
Textual chunk after the 3rd face-to-face meeting	
Unmet learning needs questionnaire	*Difficulty in interpreting the meaning of silence* and *Difficulty in communicating the salience of information.* Both problems were interpreted from message *35* sent by Mary. The first problem was interpreted when Mary said that she had not received any more questionnaires since the meeting in Madrid. The second problem highlights that the salience for receiving completed questionnaires was higher to Mary the receiver, then to who the requests were made too.
Discourse chunk from the 4th face-to-face meeting	
Review of work package 1 (12/9/02)	*Difficulty in communicating the salience of information.* This was observed when Morris informed the team that the e-mail sent by Mary earlier in that week, was not clear as to what she expected from him. In this situation, the request was more salient to Mary, the requester, than to Morris, who the information was being requested from.

Table 6.6: Cramton's potential problems in work package 1

The next section examines potential problems in work package 2.

6.8.2 Work package 2

Table 6.7 presents the potential problems which were found when discussing work package 2 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 1st face-to-face meeting	
Short presentation by each of the partners on what work they have done in the last 3 months –Partner 2 on work packages 2 and 6 (18/12/01)	*Difficulty in communicating the salience of information* and *Difficulty in interpreting the meaning of silence. Difficulty in communicating the salience of information* was observed in two situations. One, when Desmond said that information had been provided to them on 21st November, but Annie said that according to Christopher they were

	expecting more technical based information not user based. Two, when Annie said that they had requested the manual, however no one had sent it to them. Situation one shows that the salience of the document was higher for the author of the document than to all team members. In situation two, the salience of making the request for information was higher for the person making the request, than who the request was being made too. The second situation, *difficulty in interpreting the meaning of silence* can also display potential evidence of the second problem. In this situation Annie may have been wondering why team members were not fulfilling the request that she had made.
Developing a plan of future work (18/12/01)	*Unevenly distributed information*. This was observed when Hazel proposed work to team members who had already left the meeting. However, Hazel was going to place the plan onto the FTP site, so that everyone could access it.
Discourse chunk from the 2nd face-to-face meeting	
Review of work package 2 (14/3/02)	*Difficulty in communicating the salience of information*. This was observed when Hazel asked for clarification on whether voice integration was voice input. Annie, responded by saying *'yes'*, it was both input and output. This situation shows how different team members can refer to terms in different ways.
Presentation of a demo (14/3/02)	*Difficulty in communicating the salience of information*. This was observed in three situations. One, when Paul used the term *'voice input'*, and Annie asked if he was referring to *'recognition'*. This situation shows that the saliency of the term that Paul had used was higher for him, as Annie had used a different term. Two, when team members such as Paul, Ronnie and Hazel made comments stating that what they were being shown in the demonstrations is not novel. It appears there was different salience for where the added value was for the technical partners developing the product and partners from user group organisations. Three, when Charles informed the team that he had sent a draft version of a document to technical partners which he received no comments on. The last example can be used to illustrate the problem *difficulty in interpreting the meaning of silence*, as Charles did not know why comments were not sent to him.
Presentation on what the project voice solution can provide (15/3/02)	*Difficulty in communicating the salience of information*. This was observed in the following four situations. One, when Paul said that the document that they had circulated should have been referred to when making preparations for this presentation. Two, ,when Paul reported that what Annie was saying regarding screen readers not being able to read lists was not true. Three, when Ronnie mentioned that Annie had missed out an important document when preparing for this presentation. Four, when the presentation by Annie was not completed, and was not returned back to, following the presentation of Charles as James had suggested. In all situations the salience was higher for those that raised the issue than who it concerned.
Textual chunk after the 2nd face-to-face meeting	
ConPalabras plug-in	*Unevenly distributed information*. This was observed in message *41*, when Mary said she had problems accessing information from one of the addresses given requesting another address to be provided.
Discourse chunk from the 3rd face-to-face meeting	
Review of work by work packages 2/3/4 (6/6/02)	*Difficulty in communicating the salience of information*. This was observed when Annie said *'Hava scripts'* and Paul had to ask what she had said. The salience of the word *'Hava'* was greater for Annie as she was Spanish, than to the rest of the team. Annie corrected herself by saying *'Java'* shortly afterwards.

Table 6.7: Cramton's potential problems in work package 2

The next section examines potential problems in work package 3.

6.8.3 Work package 3

Table 6.8 presents the potential problems which were found when discussing work package 3 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 2nd face-to-face meeting	
Presentation by partner 9 (15/3/02)	*Difficulty in interpreting the salience of information*. This was observed when Hazel asked Kenneth if what she had said made sense. Kenneth said it did and Paul said it did not. In this situation the salience of what was said was higher for Hazel and Kenneth than to Paul.
Discourse chunk from the 3rd face-to-face meeting	
Presentation by work package 1 (7/6/02)	*Difficulty in communicating the salience of information*. This was observed when Charles informed the team that he could not understand why no one responded to his first request for comments, when he circulated the document to the team a month ago. In this situation the salience for the request was higher to Charles than the rest of the team.
Discussion on issues emerging from work package 1 (7/6/02)	*Difficulty in communicating the salience of information*. This was observed when Kenneth questioned James why partner 2 did not share relevant information to the team in their allocated time for their presentation on review of work done in work packages 2/3/4. James

	said that partner 2 could provide this information if it would be useful. This situation demonstrates the differences between the salience of presentations delivered and expectations of team members when hearing that presentation.
Requirements for the tool from a technical point of view (7/6/02)	*Failure to communicate contextual information.* This was observed when Annie informed the team that if anyone expected to see something in particular, they should be informed before hand, to allow preparations to be made.
Textual chunk after the 3rd face-to-face meeting	
Authoring tool requirements	*Difficulty in communicating the salience of information.* This was observed in message *12* sent by Kenneth where he said that the document sent by Annie in message *11* was not at the same level of detail as what was mentioned during the face-to-face meeting. Geoff had presented this information during the face-to-face meeting. In this situation the salience of what was included in this message was higher for Annie, the writer of the document, than to the receivers of the document, for example, Kenneth, who raised this matter in an e-mail he sent to the team.
Discourse chunk from the 4th face-to-face meeting	
Demonstration of the prototype (12/9/02)	*Difficulty in communicating the salience of information.* This was observed when Kenneth reported that those people who cannot see should comment on what was being shown by the technical partners, so that feedback could be gained from a potential user. Hazel raised this point at the December meeting, and it appears that the suggestion had not been put into practice. In this situation it appears that the request was far more salient to those that originally made the request, than to who it was made too.
Creating a link for stylesheets (12/9/02)	*Unevenly distributed information and Difficulty in communicating the salience of information.* The same example is used to illustrate both problems. Both problems were observed when Geoff continued his presentation in Spanish and not English. All team members did not speak Spanish so information was unevenly distributed.
Presentation of partner 4 by Michael's translator (12/9/02)	*Difficulty in communicating the salience of information.* This was observed in two situations. One, when Jack suggested the presented work could be used as part of one of the deliverables for work package 1. Hazel, however reported that most of that information had already been presented. In this situation it also appears that the Italian partners did not use information circulated by Hazel and Mary. Two, when Kenneth reported the problem of having text disappear at the bottom of the page. In this situation the salience of the document's format was higher for the producer of that document than to the receiver, especially in terms of accessibility.

Table 6.8: Cramton's potential problems in work package 3

The next section examines potential problems in work package 4.

6.8.4 Work package 4

Table 6.9 presents the potential problems which were found when discussing work package 4 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 1st face-to-face meeting	
Short presentation by each of the partners on what work they have done in the last 3 months – partner 7 (18/12/01)	*Difficulty in communicating the salience of information.* This was observed when Morris *said '...because as we understand it we do not think the project plays for us to design the e-learning content'*. This situation shows that there was a difference in the salience of that information. Partner 7 was responsible for this task, according to the allocation of initial tasks as shown in chapter 4. The situation illustrates that the salience for task allocation was higher to those that originally made the plan for the project (partner 1), than to the partner who this work was allocated to (partner 7 in this instance).
Discourse chunk from the 2nd face-to-face meeting	
Review of work by work package 2/3/4	*Difficulty in communicating the salience of information.* This was observed when Ronnie commented that he was confused because he was expected a new solution incorporating existing tools. In this situation the demonstrations were more salient to the technical partners than to the rest of the team.
Discourse chunk from the 3rd face-to-face meeting	
Demonstration of the partner 7 portal (6/6/02)	*Difficulty in communicating the salience of information.* This was observed when Morris said that the colour combination used in the design had been selected to suit Adam's needs. Adam is visually impaired. Kenneth said that he found the chosen colours difficult to believe meeting ones needs. In this situation the salience for selecting the colours for the portal was higher for Morris and Adam who were responsible for the development, than to team members such as Kenneth who saw that it was difficult to see why those colours had been chosen.
Discussion of review questions from the review report (7/6/02)	*Difficulty in communicating the salience of information.* This was observed when Mary suggested that different partners had different understanding for the meaning of the term portal. This situation

	highlights that the term e-learning portal was more salient to some partners than others.

Table 6.9: Cramton's potential problems in work package 4

The next section examines potential problems in work package 5.

6.8.5 Work package 5

Table 6.10 presents the potential problems which were found when discussing work package 5 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 2nd face-to-face meeting	
Overview of evaluation sessions (14/3/02)	*Unevenly distributed information*. This was observed when Mary said team members could see the questions, which were included on the presentation slide. However, for those team members that were visually impaired and blind, this would not have conveyed salient information to them. Mary should have read out some examples.
Discourse chunk from the 3rd face-to-face meeting	
Presentation on work package 1 (7/6/02)	*Difficulty in communicating the salience of information*. This was observed in two situations. One, a request from Ronnie for Erin to speak clearly as English was not their first language. Salience was far higher for Erin who thought that she was clearly presenting an overview of their work on work package 1, than to other team members, particularly those that did not use English as their first language. Two, when Desmond requested Charles to enlarge the font size on his presentation slides. Salience for font size was higher for Charles the presenter, than for the rest of the team. Desmond was visually impaired.
Textual chunk after the 3rd face-to-face meeting	
Evaluation of the project portal	*Difficulty in communicating the salience of information*. This was observed in message 5 when Adam informs Mary and the team that he noticed a confusion about the evaluation of the portal.

Table 6.10: Cramton's potential problems in work package 5

The next section examines potential problems in work package 6.

6.8.6 Work package 6

Table 6.11 presents the potential problems which were found when discussing work package 6 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 1st face-to-face meeting	
Dissemination activities (18/12/01)	*Difficulty in communicating the salience of information*. This was observed when Lucy asked Jack what *'aspi meant'*. In this situation the salience for using the acronyms was higher for the speaker, Jack than the listeners. In his talk, Jack used the acronym without explaining what the letters represented.
Discourse chunk from the 2nd face-to-face meeting	
Dissemination (15/3/02)	*Unevenly distributed information*. This was observed when Jack showed a picture to the team from the European Conference for Disability in September. Those team members who were blind would not have seen this information.
Project brochure (15/3/02)	*Difficulty in communicating the salience of information*. This was observed when Jack asked about a paper. The name of the paper was not given and Paul had to ask what paper he was referring to. In this situation the salience of the paper which was being referred to was more salient to Hazel and Jack, than to Paul who had to ask.
Textual chunk after the 2nd face-to-face meeting	
Publications	*Difficulty in communicating the salience of information*. This was observed in message 4, when Jason informed Fabian that he (Fabian) had missed the information that was sent from partner 9 a few weeks ago. In this situation the salience of sending the information was higher for Jason the sender, than the receiver, Fabian.
Discourse chunk from the 3rd face-to-face meeting	
Work package 6: Dissemination, Standardisation and Exploitation (6/6/02)	*Difficulty in communicating the salience of information* and *Unevenly distributed information*. *Difficulty in communicating the salience of information* was observed in three situations. One, when Ronnie reported to Fabian that all the necessary information that he required had already been provided by him. In this situation, the salience of requesting information was higher for Fabian than to Ronnie whom information was being requested from. Fabian should have been explicit in the information that he required from Ronnie. Two, when Fabian was referring to a photograph and identifying the Spanish director of science and technology. In this situation visually impaired and blind team

	members would not be able to see this information. This example can be used to illustrate the problem unevenly distributed information as well. Three, when Paul raised the issue that they had already spoke about using the project to people outside of the team, and the importance of showing information to team members before and not after it has been shown. A similar discussion took place at the 2nd face-to-face meeting. This situation suggests that the salience of team members being informed was higher for the team members who were not shown the information before, than to who was producing this information for people outside of the project team, to share news about the project. Related to discussion three, information shown outside of the team, Kenneth also raised this point, when asking about an abstract. Paul reacted to this by saying that this issue was appearing repeatedly in the discussions. *Unevenly distributed information*. This was observed when comments were made that information should be shown before and not after.
Discourse chunk from the 4th face-to-face meeting	
Work package 6 (13/9/02)d	D*ifficulty in communicating the salience of information*. This was seen when Ronnie had brought this issue to attention when telling Jack that there was a need to have a discussion regarding the problems of exploitation. Ronnie mentioned that from the previous day's meeting it came to light that some team members had different views and approaches regarding this activity. In this theme, perhaps the salience of what team members were required to do was higher for Jack than to others in the team.

Table 6.11: Cramton's potential problems in work package 6

The next section examines potential problems in work package 7.

6.8.7 Work package 7

Table 6.12 presents the potential problems which were found when discussing work package 7 in both the face-to-face meetings and e-mail communications which took place after the face-to-face meetings.

Theme	Potential problem
Discourse chunk from the 1st face-to-face meeting	
FTP site (18/12/01)	F*ailure to communicate contextual information*. It is not known if any of the issues which were raised during this meeting had been discussed during the kick off meeting. Issues concerning the accessibility of document formats identified potential evidence of this problem. Those team members who had a problem viewing certain document formats should have raised this at the outset of the team's interactions together, to ensure that they were receiving formats which were accessible to them.
Project logo (18/12/01)	*Difficulty in communicating the salience of information*. This was obvseved when Hazel and Charlotte inform Jack that they cannot see the logo, which is being shown to the team. There was higher salience for Jack who was showing the logo to the team, than to who it was being shown too.
Communication amongst the team (18/12/01)	*Difficulty in communicating the salience of information* and *Difficulty in interpreting the meaning of silence*. Both were observed when Jack reported that communication is always important, and Annie said that although this is true, there is no point in asking for documentation if no one gives it. In this situation the salience for requesting the information was higher for the person seeking it, than to the person sending it. In the second situation, silence would leave the person who requested the information wondering why their request had not been fulfilled.
Project mailing list address (18/12/01)	*Unevenly distributed information*. This was observed when Desmond informed Jack that Paul was not included on the mailing list, and requested if he could be added. In this situation Paul was not receiving information sent to the team.
Reporting (18/12/01)	*Difficulty in interpreting the meaning of silence* and *Failure to communicate contextual information*. The first was observed when Annie said they had experienced a 20-day delay in their work because they had not received any input from the partners they are working with. In this situation Annie may not have understood why there was silence amongst team members, not communicating the requested information. The second was observed when Annie said that she did not know what people were working on. This situation reveals that team members were not sharing their contextual information with the team.
Next meeting date (18/12/01)	U*nevenly distributed information*. This was observed when Ben asked if he could have a date for the next meeting, and Lucy thought it was the 18th and 19th March and Hazel said that she had the 11th and 12th March. This situation shows how two team members had different dates in mind for the next meeting. However, Lucy did make it clear that she thought that the dates were the 18th and 19th and that this information was not confirmed.
Textual chunk after the 1st face-to-face meeting	
Quarterly management report	*Difficulty in communicating the salience of information and Difficulty in interpreting the meaning of silence*. The first problem was observed in message *34*, sent by Jack where the salience for requesting contributions from partners was higher for Jack than to the rest of the

	project team, whom the request was being made too. The same example can be used to illustrate potential evidence of the second problem too.
Amendment letter	*Difficulty in communicating the salience of information* and *Difficulty in interpreting the meaning of silence*. The first problem was observed in message *34*, where the salience for requesting the message was higher for Jack, than to the rest of the project team, whom the request was being made too. Message *34* can also be used to show potential evidence of the second problem as well. Jack did not know why people were not sending their information to him as he had requested, not being able to interpret why there was silence from team members.
Next meeting date	*Difficulty in communicating the salience of information*. This was observed when Desmond sent message *4*, to the team proposing that the date of the meeting is changed, in order to allow the user group partners more time for their activities.
Discourse chunk from the 2nd face-to-face meeting	
FTP site (15/3/02)	*Difficulty in interpreting the salience of information* and *Difficulty in interpreting the meaning of silence*. This was observed in the following situation. The same example is used to illustrate both problems. When Desmond informed Jack that information was sent to him to be added to the site which was not. In this situation the salience for Jack placing the documents onto the site was higher for Desmond than Jack, who the request was made to. In the second problem, Desmond did not know the reason for the silence, so he placed the documents onto it himself.
Textual chunk after the 2nd face-to-face meeting	
Web page for the project	*Unevenly distributed information*. This was observed in message *41*, when Mary said she had problems accessing information from one of the addresses given.
Special report	*Difficulty in communicating the salience of information*. This was observed in message *26* when Thomas sent a message with nothing in the main body or had an attachment included. The subject title was *'comments about the special report'*. It appears that Thomas the sender of the message had higher salience, than those who received this blank message.
Quarterly report	*Difficulty in communicating the salience of information*. This was observed in message *23* when Jack, said that there had not been many contributions from partners. It appears that Jack may have had higher salience requesting this information from team members, than to who the request was being made too.
Next meeting date	*Difficulty in communicating the salience of information*. This was observed in messages *36* and *37* which mentioned that that 6th and 7th June would be difficult to attend, but had no problem with 3rd and 4th. In these messages the salience for selecting another date was higher for Jack than Hazel and Lucy.
Discourse chunk from the 3rd face-to-face meeting	
Date of next meeting (7/6/02)	*Difficulty in communicating the salience of information*. This was observed when there were proposals to hold weekend meetings. Team members had been informed both at this meeting and previous meetings that weekends are not convenient to hold meetings. In this theme salience for holding weekend meetings was greater for the requester than to members of the team.
Meeting minutes (15/3/02)	*Unevenly distributed information*. This was observed when Paul informed Jack that he did not receive the minutes for the London meeting. Jack suggested that this might have been because he was not on the mailing list.
Textual chunk after the 3rd face-to-face meeting	
Annex 1 updated	*Difficulty in communicating the salience of information*. This was observed in message *9* sent by Hazel which said that she was disappointed to receive a new version of the draft with none of the proposed changes incorporated into it, and no explanation why not. In this situation the salience for the changes to be made were higher for those that proposed it than who the request was made too.
Textual chunk after the 4th face-to-face meeting	
Amendment number 3	*Difficulty in interpreting the meaning of silence*. This was observed in message *5* Jack sent. In this message he requested team members to send him an e-mail to inform him of their situation, in order to try and understand why there may be silence, and why he has not received the information he has requested.

Table 6.12: Cramton's potential problems in work package 7

The next section examines potential problems in category other.

6.8.8 Other

Table 6.13 presents the potential problems which were found when looking at category other.

Theme	Potential problem
Discourse chunk from the 3rd face-to-face meeting	
Discussion of review questions from review report (6/6/02)	*Difficulty in communicating the salience of information*. This was observed when Mary said that from the discussions which had come up today, it seems that perhaps different partners have different understanding of what an e-learning portal is and what the project e-

	learning portal should be. This shows that salience of the term may have been higher to Mary than to everyone else in the team.

Table 6.13: Cramton's potential problems in category other

The next section summarises the potential problems found in work packages 1-7 and category other.

6.8.9 Summary

Tables 6.5-6.13 show Cramton's potential problems in work packages 1-7. Immediately it can be seen that the highest number of potential problems were observed in work package 7, closely followed by work package 1. The least number of problems were observed in work packages 4 and 5 and category other.

This section shows that difficulty in communicating the salience of information was generally the most frequently found problem during face-to-face communications and e-mail interactions. Failure to communicate contextual information; unevenly distributed information and difficulty in interpreting the meaning of silence were also found in the data, but not to the same level of frequency as difficulty in communicating the salience of information. The only problem which was not present in this set of data was differences in speed of access to information.

Analysis therefore reveals that Cramton's problems are not only evident in dispersed collaboration (in this investigation through e-mail messages), but are also identified during face-to-face interactions as well. Cramton (1997; 2001; 2002) did not rank which problem she collected the most evidence for, so no comparisons can be made on the frequency of problems found evident in the set of data which was collected for this investigation and the analysis Cramton reported.

However, it is interesting, to see that difficulty in communicating the salience of information was a recurring problem in this European project team, especially as a re-definition for mutual understanding presented in chapter 3 shows that common ground is one of the ingredients necessary for mutual understanding. The re-definition for common ground also presented in chapter 3 shows that common ground concerns salient information. For this reason, to promote mutual understanding in teamwork requires common ground and evidence of the problem difficulty in communicating the salience of information should be low in frequency.

It is also interesting to see that for work packages 1, 2, 4, 5 and 7 as the number of meetings increase, the number of potential problems which are observed during the meeting decrease.

The next section concludes this chapter.

6.9 Conclusion

This chapter has presented some interesting analyses. The case study was analysed looking at different phases of group development; looking at how much time is spent looking at different activities; working in a multidisciplinary team and having blind and visually impaired team members.

The next chapter presents insights and patters observed using chapters 5 and 6.

Chapter 7

Insights and patterns

Chapter 7: Insights and patterns

This chapter includes a discussion of the results presented in chapters 5 and 6 and looks at aspects of inter-rater reliability.

Telephone interviews and questionnaires discussed in chapter 4 did not monitor the evolution of mutual understanding in this team. Telephone interviews were conducted individually with team members to gather their feelings on the progress of the project and what was being discussed during the face-to-face meetings and e-mail interactions. The questionnaire was designed to gather an insight into the nature of the multidisciplinary project team. Both sets of data provided supplementary material to the investigation. Results of the questionnaire have been summarised in Appendix F identifying the nature of the multidisciplinary team.

The next section looks at the analysis of the insights in more detail.

7.1 Analysis of the insights

The evolution of mutual understanding which has been reported in chapter 5, using the empirical data collected for 1-year, identify the project's different work packages. Nearly all themes that were discussed contributed towards the research aims, objectives and milestones of the European research project. Coding discourse chunks and textual chunks into the short, medium and long term timescale was completed by the researcher.

This investigation assumed that as a result of making an utterance in a discourse chunk or textual chunk this would result in increased mutual belief. Evidence that a mutual belief is held is referred to in a recursive manner in literature (Lewis, 1969). However, examples only look at mutual belief by focussing on one utterance. As the unit of analysis for this investigation was discourse and textual chunks, each chunk could contain more than one mutual belief. This was observed in the insights reported for each of the chunks.

When no verbal utterances were provided, it was assumed that team members held this belief on the issue which was the subject of discussion. This assumption is consistent with what has been reported in literature (Novick et al. 1996; Carberry and Lambert, 1999). However, when referring to the empirical data reported in this chapter, recursive mutual belief is not always found as a result of their being conflicting opinions amongst team members and belief states altering. Examining the empirical data has shown that evidence to highlight when mutual beliefs are not held can only be identified through verbal utterances.

Displayed evidence of mutual belief as found in this investigation, based on real life data, reveals that mutual belief is often not found in the same recursive manner identified in literature (Lewis, 1969). That is the recursive nature of showing that mutual belief is held, and team members believing that this mutual belief is held. Examples reported in literature are usually hypothetical, but analysis of the empirical data from this investigation, reveals that it is not possible for there to be recursive evidence for mutual beliefs, especially when working in a team. The most plausible reason appears to be that providing evidence of

recursive belief is not natural for team members. Also, the more persons there are involved in the discussion, the greater the chance of there being altering belief states. It is not known at what stage, it can be identified that there is a mutual belief(s) on the item of discussion. In this investigation it was assumed that once everyone had stopped talking about the topic of discussion and there were no altered belief states that there was evidence of mutual belief(s) in the team which was shared.

The next section looks at in more detail an overview of the insights from the face-to-face meetings.

7.1.1 Face-to-face meetings

Face-to-face meetings took place four times a year, as team members were dispersed, belonging to nine partner organisation from six European States, but were working together collaboratively on this research project. Using the 15 responses to the telephone interview the average ratings given by team members on a scale of 1 to 5 (1 being not very effective and 5 being very effective), to rate how useful the four formal face-to-face meetings were which took place in 1-year are shown: December 2001 (2.1), March 2002 (2.1), June 2002 (2.6) and September 2002 (2.7). Results show that as number of meetings increased so did the usefulness of the meetings. It must be noted that everyone who participated in the interview did not attend all meetings. Reasons ranged from illness, not started working on the project to financial constraints. This may have affected the mean rating for the usefulness given for each face-to-face meeting.

The next section summarises the sub-states which was found in the transcript based data.

7.1.1.1 Summary of states and sub-states

Monitoring the evolution of mutual understanding on a moment-by-moment basis reveals that sub-state 1.1: (growth in mutual understanding and agreement) was by far the most frequently observed in the transcript data. The table summarising for each theme the evidence of sub-states which were found confirms this observation. Appendices G, I, K and M include the transcripts of the face-to-face meetings, which highlight grounding evidences and the application of sub-states to the grounding evidence. Looking more closely at the actual discourse has revealed that sub-state 1.1 was not only found when there were the same disciplines communicating together, or team members from the same partner organisation, but also across the different partner organisations as well, suggesting that agreement can be reached even when the team is multidisciplinary.

Other sub-states which characterised growth in mutual understanding were sub-State 1.2: (growth in mutual understanding and agreement to a disagreement); Sub-State 1.3: (growth in mutual understanding and agreement to a neutral position); Sub-State 2.1: (growth in mutual understanding and disagreement); Sub-State 2.2: (growth in mutual understanding and disagreement to a agreement); Sub-State 2.3: (growth in mutual understanding and disagreement to a neutral position); Sub-State 3.1: (growth in mutual understanding holding a neutral position) and Sub-state 4.1: (growth in mutual understanding and no eventual agreement).

Sub-states 1.2 and 1.3 were not commonly found in the analysis, however it was important to distinguish between the different contexts and situations in which evidence of agreement was found. Sub-state 2.1 was also commonly found in the data, however, not to the same degree as that observed for agreement, sub-state 1.1. Sub-state 2.1 was commonly found when interactions involved team members who had different disciplines and belonged to different partner organisations. Similarly, sub-states 2.2 and 2.3 were not commonly found in the data. Sub-state 3.1 was also found in the data, but not in the same quantity as sub-state 2.1. Sub-state 4.1 was also found, and this was often associated with themes that required team members to make a decision. Conflicting availability appeared to be the main cause of this problem, and not necessarily a result of the multidisciplinary make up of the project team.

Evidence of no growth in mutual understanding, sub-state 5.1: (No perceived growth in mutual understanding) was also found. Evidence of sub-state 5.1 was identified both during a single meeting and across different meetings as well, highlighting that there does not need to be a large amount of time in between a face-to-face meeting to result in no growth in mutual understanding. As the description for characterised sub-state 5.1 in chapter 3 has shown, no growth in mutual understanding can be observed after a few minutes, seconds, days, days, hours, weeks, months or years. The researcher believes that working in a multidisciplinary team was one of the main reasons why evidence for sub-state 5.1 was found in the data, differing expectations and experiences amongst key team members that were working together. No growth in e-mail messages was also characterised by actions discussed face-to-face not being followed up by e-mail. There was evidence of this state only on a few occasions as most of the messages which were sent to the team were associated with the teams aims, goals, objectives and milestones.

Responses from the telephone interview also suggested that the team was split into two main groups, technical and user. Technical team members were responsible for producing the project tool, and the user knowledge team members were responsible for eliciting requirements for the project tool and conducting evaluations. However, analysis reported in section 6.5 shows that some team members also had user and technical knowledge. Transcripts of the face-to-face meetings show that there were several occasions where tension was observed between the user stakeholders and technical stakeholders. The main identifier was textual chunks showing evidence of sub-states other than 1.1 (agreement), often including sub-states 2.1 and 5.1. Most tensions were related to difficulties in communicating information from one's background area and sharing it with the rest of the team, and team members having different expectations. Although chapter 4 did not provide a distinction between the user and technical stakeholders, table 2.2 which presented the work packages of the project, suggest a user and technical divide. Transcripts also reveal that during the meetings some team members refer to themselves as 'user group partners' and others as 'technicians'. Appendix F shows the disciplinary and background experiences of team members, based on the questionnaire responses.

The next section looks at the role that e-mail messages played in between each face-to-face meeting.

7.1.2 E-mail messages sent to the mailing list

181 e-mail messages were sent to the project mailing list in between the four face-to-face meetings which took place in 1-year of the 27-month project. This suggests that e-mail played an important role between each face-to-face meeting. However, not all team members sent messages to the team. This is confirmed by looking at the tables which show who sent messages after each meeting. Detailed analysis was provided identifying what messages were sent after each face-to-face meeting by establishing themes, which reflected the communicative intentions of the writer. As one message can refer to a number of different themes, one message can be referred to more than once. Murakoshi and Ochhimizu (1998) have identified that participants must deal with parallel topics in e-mail communication. Especially when participants send and receive e-mail messages asynchronously, they tend to send their partners many utterances at once. This supports the view that team members can refer to more than one theme in a single message that they send to the team. Using the 15 responses to the telephone interview the average ratings given by team members on a scale of 1 to 5 (1 being not very effective and 5 being very effective), to rate how useful team members found the use of e-mail messages in supporting communicating and collaboration in between face-to-face meetings, 3.3 was the mean value obtained. Results seem to imply that e-mail messages were useful in supporting communication and collaboration with team members in between face-to-face meetings.

When looking at the e-mail messages that were sent to the mailing list, towards the end of the first year, the number of messages sent to the list was almost reduced by half. Also, the number of team members sending messages to the list reduced in size as well. Reasons for this change over time have not been identified as team members were not asked what might have been the contributing factors for this change.

A summary of states is presented next which was used to observe the evolution of mutual understanding in e-mail messages.

7.1.2.1 Summary of states

The contents of what was included in the e-mail messages were often consistent with what had been discussed during the face-to-face meeting (states 1, 2 and 3). However, messages were also sent which did not relate to items discussed during those meetings (states 4, 5, and 6). Few occasions also displayed evidence of team members not following up actions which were discussed face-to-face by e-mail (state 7). Those situations displayed evidence of no growth in mutual understanding. They included not providing regular reporting to the team and not sharing information that will be shown outside of the team to team members.

E-mail messages were sent to inform team members of events and new information, send draft documents to the team and continue working towards the planned goals, aims and objectives. Sometimes messages were also sent to the mailing list, but addressed to specific team members. At other times the messages were sent addressing the team. However, all e-mail messages which were sent did not result in discussion threads forming. When discussion threads did form, sometimes it was as a result of the sender of the original message sending further messages related to that particular theme.

The next section looks at the reported insights in relation to the aims and objectives of the project.

7.1.3 Observing the aims and objectives of the project

A large number of discourse chunks, discussed during the face-to-face meeting and textual chunks, through e-mail interactions were contributing towards realising the aims and objectives of the project. As data was collected using a 27-month project for a 1-year period, all project's aims and objectives had not been fulfilled in that time period. Table 4.2 in chapter 4 shows the seven work packages which the project would contribute to.

At the end of the first year, the project succeeded in producing work for work packages 1 (User requirements of accessibility and web authoring tools); 2, (Plug-ins for speech recognition and synthesis integration, with the possibility of adjusting the speed of the synthesiser); 3 (Tool development) and 4 (Creation of an accessible learning portal). Discussions that took place during the face-to-face meeting, identified through discourse chunks, and e-mail messages sent to the mailing list, identified as textual chunks show that through these two forms of interactions, team members were able to share information with the team, and to contribute towards their allocation of work. Work package 5 (Evaluation) had started its work but would continue after the researcher stopped collecting data from the project team. Work package 6 (Dissemination, Standardisation and exploitation) was ongoing and would continue until month 27, which marks the end of the project. However, there was evidence of discussions taking place face-to-face and by e-mail looking at work packages 5 and 6, both work packages started during the time the researcher was collecting empirical data. Work package 7 (Project Management) was observed throughout the project by Jack and Fabian, after Jonathan left. Jack and Fabian both worked for partner organisation 1. Work packages 3 and 4 were still ongoing after the data collection period for this investigation.

Work packages 1-4 contributed towards the project's aims:

- Facilitate visually impaired persons access to the Internet and design of accessible web pages.
- Provide web developers with an authoring tool, which facilitates the creation of accessible web pages. This tool should be integrateable with any existing well-known web-authoring tool or at least be compatible.
- Development of an accessible portal which can be browsed by means of speech.

The most significant outcome during this 1-year period for the team was the continuation of the project for a further 18 months, following a successful annual project review. Although the project was planned for 27-months, funding was only given for the first 12. Discussions regarding the annual review and documents required for it took place both face-to-face and continued by e-mail.

The next section looks at other interesting analyses which was performed.

7.1.4 Group development phases

Tuckman's model of phases groups go through show that they can also be successfully applied to a team and not just to a group. Only phases 1-4 were observed in the data as the project was not completed at the end of the data collection period. It was interesting to see that each work package reached the performing

phase, showing that although there were difficulties in teamwork at times, productive results were being reached over time. The analysis also showed that the storming phases was most observed during the phases of technical development.

Time is examined next.

7.1.5 Time

For each work package long term timescale was most frequently observed. It was useful to see this as in this team partners belonged to different countries and attending meetings had to be in the project's benefit. However, for work package 7, project management, there were several themes that were only of medium term timescale. For example, themes related to the next face-to-face meeting.

Working in a multidisciplinary team is examined next.

7.1.6 Working in a multidisciplinary team

There were several occasions when there were difficulties in understanding the needs of visually impaired and blind people to sighted people, especially the technical partners which were involved with the technical development work. Also, although a glossary was proposed after realising team members had different interpretations of terms, it was interesting that a glossary was not created at the start of the project and used from the beginning. This may have influenced the group development phases, potentially lowering the number of storming phases which are found.

Mulder's categories or aspects are examined next.

7.1.7 Mulder's categories or aspects

The three most frequently occurring categories or aspects were task/domain, social interaction and process. Team members would have expected to see task/domain dominate the categories or aspects for the same reasons discussed in examining time. That is team members were working in this project amongst other areas in their partner organisations, so meetings had to be carefully structured and organised so time was used efficiently.

Cramton's problems are examined next.

7.1.8 Cramton's problems

Difficulty in communicating the salience of information was the most frequently found problem. This was observed both face-to-face and in e-mail interactions. Identification of this problem suggests that it is important to communicate salient information, especially in the context of mutual understanding and when working as part of a multidisciplinary team.

The next section looks at inter-rater reliability of the results which have been presented in this chapter.

7.1.9 Inter rater reliability

This section in turn looks at inter-rater reliability by referring to four main areas. Identifying grounding evidence and applying the characterised states and sub-states for transcript data and e-mail messages. Also, applying Mulder's categories or aspects and seeking evidence for Cramton's reported problems.

7.1.9.1 Identifying grounding evidence and applying the characterised states and sub-states using transcript data

One independent rater who had no knowledge of the project or experience in this work was asked to validate a sample of discourse chunks from transcripts, to check for consistency and reliability of identifying grounding evidence in the data, applying the states and sub-states to the identified grounding evidence and establishing if there was evidence of sub-states 4.1 and 5.1 in the discourse chunks. To familiarise the rater with this area of work, an example was provided, showing how to identify grounding evidence in the data, and how to select the characterised states and sub-states from chapter 3. A random sample of seven dialogue chunks from the December 2001 meeting, consisting of 750 lines was given to the rater. Next the results of the validation are presented.

The researcher identified 18 sub-states in the discourse chunk *FTP site* (18/12/01 transcript). Out of 18 sub-states, two (11%) showed a difference between the researcher and the raters application of sub-states. The rater and not the researcher coded one sub-state (6%). The researcher and the coder applied the same sub-state 15 times (83%).

The researcher identified 12 sub-states in the discourse chunk *Mailing list* (18/12/01 transcript). Out of the 12 sub-states, two (17%) %) showed a difference between the researcher and the raters application of sub-states. The researcher and not the rater coded one sub-state (8%). The researcher and the coder applied the same sub-state nine times (75%).

The researcher and the rater identified no sub-states in the discourse chunk *Short presentation by each of the partners on what work they have done in the last 3-months*. There was 100% accuracy in this situation.

The researcher identified 36 sub-states in the discourse chunk *Partner 8* (18/12/01 transcript). Out of 36 sub-states, two (6%) showed a difference between the researcher and the raters application of sub-states. The researcher and not the rater coded two sub-states (6%). The rater and not the researcher coded two sub-states (6%). The researcher and the coder applied the same sub-state 30 times (83%).

The researcher identified 192 sub-states in the discourse chunk *Partner 2* (18/12/01 transcript). Out of 192 sub-states, 13 (7%) showed a difference between the researcher and the raters application of sub-states. The researcher and not the rater coded nine sub-states (5%). The rater and not the researcher coded two sub-states (1%). The researcher and the coder applied the same sub-state 168 times (88%).

The researcher identified six sub-states in the discourse chunk *Next meeting date* (18/12/01 transcript). There was 100% accuracy between the researchers identification of sub-states and the raters.

The researcher identified seven sub-states in the discourse chunk *Dinner arrangements* (17/12/01 transcript). Out of seven sub-states, the researcher and not the rater coded one sub-state (14%). The researcher and the coder applied the same sub-state 6 times (86%).

Results from this validation highlight that grounding evidence can be identified to a high level of accuracy by two independent persons and the characterised states and sub-states can be applied to grounding evidence and to discourse chunks.

The next section looks at applying characterised states using e-mail messages.

7.1.9.2 Applying characterised states using e-mail messages

The independent rater who validated a sample of data for applying the characterised states and sub states to data collected from transcripts was not asked to validate a sample of e-mail messages and to apply the characterised states to those e-mail messages. Some of the states characterised for monitoring the evolution of mutual understanding for e-mail interactions as described in chapter 3, referred to what was discussed during the face-to-face consortium meeting. As the rater would not have knowledge of what was discussed during the face-to-face meetings, no validation was performed on the application of the characterised states to e-mail data collected for this investigation.

The next section looks at validating applying Mulder's categories or aspects.

7.1.9.3 Applying Mulder's categories or aspects

To identify and establish if Mulder's (2000) four categories or aspects by which groups update mutual understanding were interpreted correctly by the researcher, Ingrid Mulder was asked by e-mail to validate a sample of the empirical data. Mulder was not able to participate in this exercise due to time constraints. As a result the independent coder mentioned was also asked to identify evidence of Mulder's categories or aspects in the discourse chunks that they had been asked to identify grounding evidence and to apply the characterised states and sub-states too. As the coder was not familiar with this work, an example was provided by the researcher, and the specific coding used for the categories task/domain, social interaction, process and technology (Mulder, 2000) was provided to show in more detail what Mulder used to identify evidence of those four categories or aspects.

Using data from the December 2001 meeting, seven themes were used for this validation. Out of seven themes five (71%) matched identically with the researcher. In one theme the coder identified one category or aspect, and the researcher identified two. In the second theme the coder identifier two categories or aspects, and the researcher identified only one. Results from this validation highlight that Mulder's (2000) categories or aspects can be identified from chunks of data with accuracy.

The next section looks at the validation of Cramton's reported problems.

7.1.9.4 Seeking evidence for Cramton's reported problems

Catherine Cramton validated a sample of empirical data to check if her five problems had been interpreted correctly by the researcher. Extracts of potential problems from the December and March face-to-face consortium meetings and e-mail messages sent to the team using the mailing address after those two meeting were put into a table. The table also included a column to write down what potential problem was being shown in each extract and a second column to record comments. As discussed in chapter 4, as one extract may show evidence of more than one problem, repeated extracts were included in the table to match the number of potential problems that extract was associated with. This exercise was performed by e-mail.

33 extracts from face-to-face meetings and 28 extracts from e-mail messages were used for the validation. Cramton did not code 18 extracts (54%) from the face-to-face meeting, and the rating column was left blank. Six extracts (18%) did not match the researcher interpretation of the potential problems. Four extracts (12%) matched the researcher interpretation, but Cramton commented that the problem was dependent on the remaining scenario. Five extracts (15%) matched the researcher interpretation identically. Cramton did not code seven extracts (25%) from the e-mail messages, and the rating column was left blank. Ten extracts (36%) did not match the researcher interpretation of the potential problems. Seven extracts (25%) matched the researcher interpretation, but Cramton commented that the problem was dependent on the remaining scenario. Three extracts (11%) matched the researcher interpretation identically. In one extract (4%) Cramton commented that it was not clear that a problem existed which the researcher had interpreted as showing evidence of a potential problem. Context also affected the results of the validation exercise. Cramton commented that it was often difficult to classify the extract to one of her identified problems because there was a lack of context. Cramton did not have access to all of the data which was collected for this investigation, only extracts of the face-to-face meetings and e-mail messages which showed evidence of her potential problems. Further data was not provided to Cramton to repeat the validation exercise. Results of this exercise highlight that Cramton's problems appear in both dispersed and collocated collaborations. As identification of the problems was not related to the evolution of mutual understanding it did not matter that the inter-rater reliability did not yield higher results.

The next section examines patterns in the data.

7.2 Examining patterns

This section examines five patterns which were found during the analysis of data. The patterns are looking at the phases in relation to time, looking at Cramton's problems in relation to the phases, looking at Cramton's problems in relation to time, looking at no growth in mutual understanding in relation to the phases and looking at no growth in mutual understanding in relation to time.

The first pattern is looking at the five phases found in relation to time (the short term, medium term and long term timescale).

7.2.1 Looking at the phases in relation to time

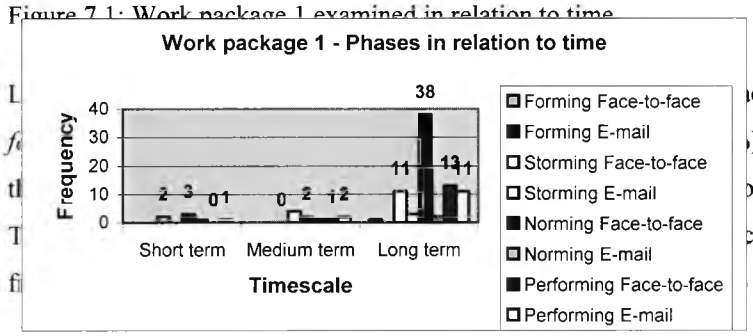
For each work package and category other figures 7.4-7.9 shows evidence of the different phases, highlighting interactions that took place face-to-face and by e-mail. The different phases are examined in relation to time.

Work package 1 is examined next.

7.2.1.1 Work package 1

Figure 7.1 shows that the *forming* phase was found only once in a long term theme in a face-to-face interaction. The *storming* phase was found both in the face-to-face and e-mail interactions, however, was the most frequent in face-to-face interactions and with long term themes. The *norming* phase was also found both in the face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. Lastly, the *performing* phase was found both in the face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes.

Figure 7.1: Work package 1 examined in relation to time



L ace-to-face meetings evidence of the
f). The *storming* phase was found at
tl ound at the 1st meeting (7/13 = 54%).
T ce-to-face meetings, with the highest
fi = 47% and 6/14 = 43%).

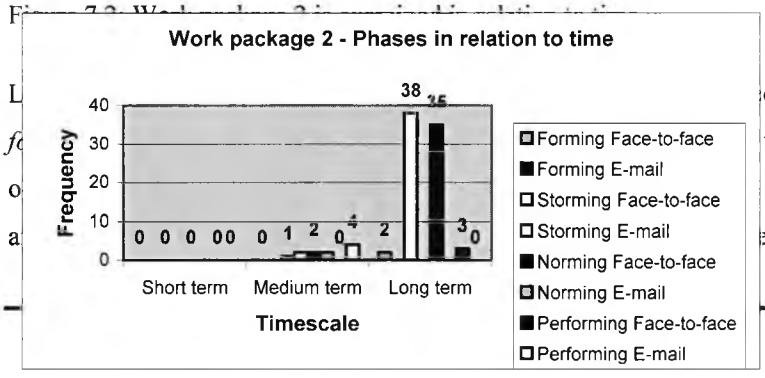
Looking at e-mail interactions reveals that the *storming* phase was found after the 1st and 3rd face-to-face meeting, with the highest frequency found after the 1st face-to-face meeting (4/7 = 57%). The *norming* phase was found after the 1st, 3rd and 4th face-to-face meeting, with the highest frequency found after the 1st face-to-face meeting (2/4 = 50%). Lastly, the *performing* phase was found after all four face-to-face meetings, with the highest frequency found after the 1st first-face-to-face meeting (8/14 = 57%).

Work package 2 is examined next.

7.2.1.2 Work package 2

Figure 7.2 shows that the *forming* phase was found twice in a long term theme in a face-to-face interaction. The *storming* phase was found both in the face-to-face and e-mail interactions, however, was the most frequent in face-to-face interactions and with long term themes. The *norming* phase was also found in the face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. Lastly, the *performing* phase was found also found in the face-to-face and e-mail interactions, and was the most frequent in e-mail interactions and with medium term themes.

F



L e-to-face meetings evidence of the
f the highest frequency found at both
o *storming* phase was found at the 1st
a e 2nd face-to-face meeting (27/39 =

69%). The *norming* phase was found at the 1st, 2nd and 3rd face-to-face meeting, with the highest frequency found at the 2nd face-to-face meeting (21/37 = 57%). The *performing* phase was found at the 2nd and 3rd face-to-face meeting, with the highest frequency found at the 2nd face-to-face meeting (2/3 = 67%).

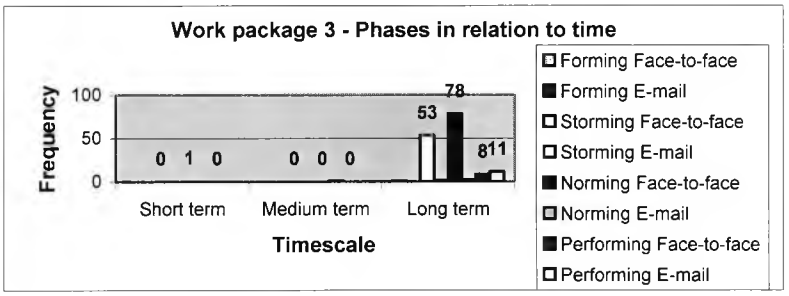
Looking at e-mail interactions reveals that the *storming* phase was found after the 2nd and 3rd face-to-face meeting, with the highest frequency found at both of those meetings as they had identical frequencies (1/2 = 50%). The *norming* phase was found after the 1st and 3rd face-to-face meeting, with the highest frequency found at both of those meetings as they also had identical frequencies (1/2 = 50%). Lastly, the *performing* phase was found after the 1st and 3rd face-to-face meeting, with the highest frequency found after the 3rd face-to-face meeting (3/4 = 75%).

Work package 3 is examined next.

7.2.1.3 Work package 3

Figure 7.3 shows that the *forming* phase was found once in a long term theme in a face-to-face interaction. However, the *storming* phase was found in both face-to-face and e-mail interactions. The most frequent was in face-to-face interactions and with long term themes. The *norming* phase was also found in both face-to-face and e-mail interactions. The most frequent was in face-to-face interactions and with long term themes. Lastly, the *performing* phase was also found in both face-to-face and e-mail interactions. The most frequent was in e-mail interactions and with long term themes

Figure 7.3: Work package 3 is examined in relation to time



Looking more closely at the interactions reveals that during the face-to-face meetings evidence of the *forming* phase was found at the 4th face-to-face meeting (100%). The *storming* and *norming* phases were found at all four face-to-face meetings, with the highest frequency found at the 3rd face-to-face meeting (31/53 = 58% and 35/79 = 44%). The *performing* phase was found at the 3rd and 4th face-to-face meeting, with the highest frequency found at the 3rd face-to-face meeting (5/8 = 63%).

Looking at e-mail interactions reveals that the *storming* phase was found after the 3rd face-to-face meeting (100%). The *norming* phase was found after the 1st and 3rd face-to-face meeting, with the highest frequency found after the 1st face-to-face meeting (2/3 = 67%). The *performing* phase was found after all

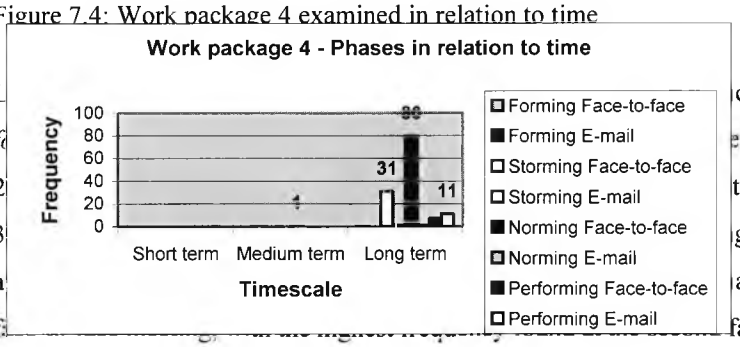
four face-to-face meetings, with the highest frequency found after the 2nd, 3rd and 4th face-to-face meeting, all with identical frequencies (3/11 = 27%).

Work package 4 is examined next.

7.2.1.4 Work package 4

Figure 7.4 shows that the *forming* phase was found once in a long term theme in a face-to-face interaction. The *storming* phase was found in both face-to-face and e-mail interactions, however, was the most frequent in face-to-face interactions and with long term themes. The *norming* phase was also found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. Lastly, the *performing* phase was found in both face-to-face and e-mail interactions, and was the most frequent in e-mail interactions and with long term themes.

Figure 7.4: Work package 4 examined in relation to time



L ce-to-face meetings evidence of the
f *storming* phase was found at the 1st,
2 the 2nd face-to-face meeting (12/31 =
3 gs, with the highest frequency found
a ase was found at the 1st, 2nd and 4th
f face-to-face meeting (3/7 = 43%).

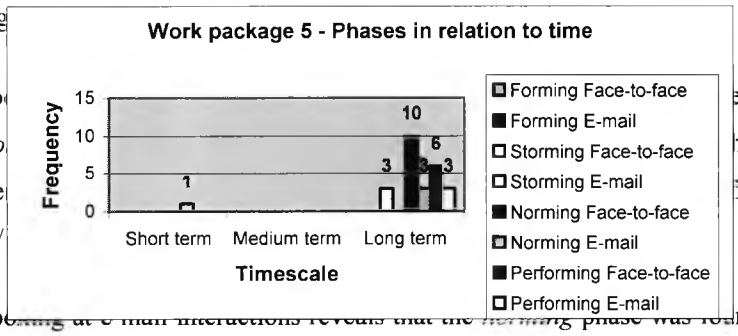
Looking at e-mail interactions reveals that the *storming* and *norming* phases were found after the 2nd face-to-face meeting (100% each). The *performing* phase was found after all four face-to-face meetings, with the highest frequency found after the 3rd face-to-face meeting (5/11 = 45%).

Work package 5 is examined next.

7.2.1.5 Work package 5

Figure 7.5 shows that there was no evidence of the *forming* phase. The *storming* phase was only found in the face-to-face interactions, with long term themes. The *norming* phase was found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. Lastly, the *performing* phase was also found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes.

Fig



Lo -to-face meetings evidence of the *sto* he *norming* and *performing* phases we requency found at the 3rd meeting (7/

Lo nd after the 3rd and 4th face-to-face meeting, with the highest frequency found after the 4th face-to-face meeting (3/4 = 75%). The *performing* phase was found after the 2nd and 3rd face-to-face meeting, with the highest frequency found after the 3rd face-to-face meeting (2/3 = 67%).

Work package 6 is examined next.

7.2.1.6 Work package 6

Figure 7.6 shows that the *forming* phase was found once in a long term theme in a face-to-face interaction. The *storming* phase was found in both face-to-face and e-mail interactions, with long term themes. The *norming* phase was also found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. Lastly, the *performing* phase was also found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes.

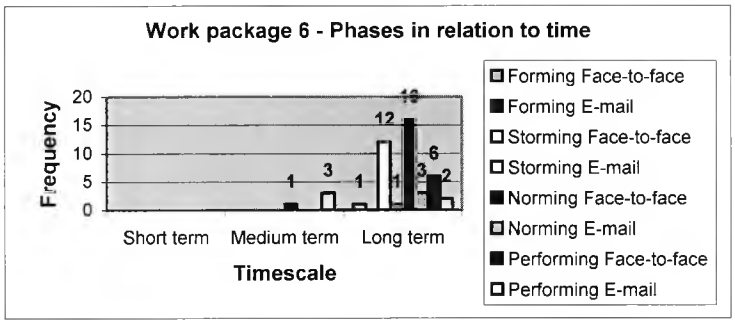


Figure 7.6: Work package 6 examined in relation to time

Looking more closely at the interactions reveals that during the face-to-face meetings evidence of the *forming* phase was found at the 2nd face-to-face meeting (100%). The *storming* phase was found at all four face-to-face meetings, with the highest frequency found at the 2nd and 3rd face-to-face meeting, both with identical frequencies (5/12 = 42%). The *norming* phase was found at the 2nd, 3rd and 4th face-to-face meeting, with the highest frequency found at the 2nd face-to-face meeting (13/17 = 76%). The *performing* phase was found at all four face-to-face meetings, with the highest frequency found at the 1st and 4th face-to-face meeting, both with identical frequencies (2/6 = 33%).

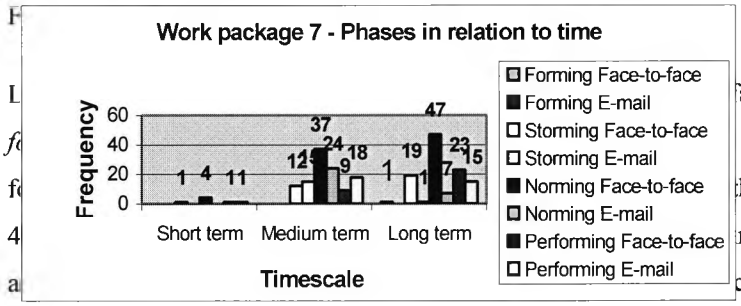
Looking at e-mail interactions reveals that the *storming* phase was found after the 2nd face-to-face meeting (100%). The *norming* phase was found after the 1st and 2nd face-to-face meeting, with the highest

frequency found after the 2nd meeting (2/3 = 67%). The *performing* phase was found after the 1st, 3rd and 4th face-to-face meeting, with the highest frequency found after the 3rd and 4th face-to-face meeting, both with identical frequencies (2/5 = 40%).

Work package 7 is examined next.

7.2.1.7 Work package 7

Figure 7.7 shows that the *forming* phase was found once in a long term theme in a face-to-face interaction. The *storming* phase was found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. The *norming* phase was found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes. Lastly, the *performing* phase was found in both face-to-face and e-mail interactions, and was the most frequent in face-to-face interactions and with long term themes.



face-to-face meetings evidence of the *f* The *storming* phase was found at all f the 1st face-to-face meeting (14/30 = 4 ngs, with the highest frequency found a cies (26/88 = 30%). The *performing* phase was also found at all four face-to-face meetings, with the highest frequency found at the 3rd face-to-face meeting (15/33 = 45%).

Looking at e-mail interactions reveals that the *storming* phase was found after all four face-to-face meetings, with the highest frequency found after the 2nd face-to-face meeting (7/14 = 50%). The *norming* and *performing* phases were also found after all four face-to-face meetings, with the highest frequency found after the 2nd face-to-face meeting (11/31 = 35% and 13/34 = 38%).

Category other is examined next.

7.2.1.8 Other

Figure 7.8 shows that there was no evidence of the *forming*, *storming* and *performing* phases. Only evidence of the *norming* phase was found in both face-to-face and e-mail interactions, and was the most frequent in e-mail interactions and with medium term themes.

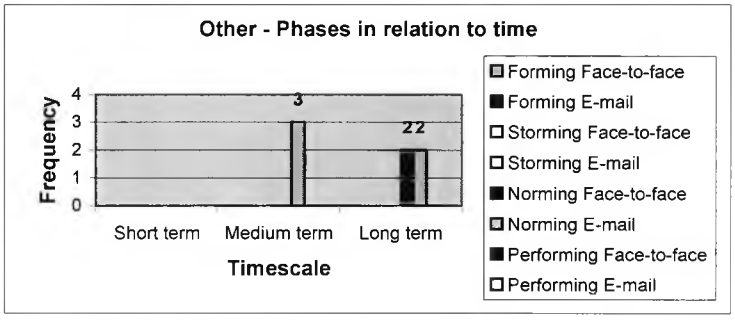


Fig 7.8: Category other examined in relation to time

Looking more closely at the interactions reveals that during the face-to-face meetings evidence of the *norming* phase was found at the 3rd face-to-face meeting (100%).

Looking at e-mail interactions reveals that the *norming* phase was found after the 1st, 2nd and 3rd face-to-face meeting, with the highest frequency after the 3rd face-to-face meeting (3/5 = 60%).

The next section provides a summary of all the patterns which have been observed.

7.2.1.9 Summary

This section provides a summary of the patterns which have been observed when looking at the phases in relation to time.

Looking at the phases in relation to time shows that for each of the phases, forming, storming, norming and performing for work package 1, the long term themes were the most frequent. For *forming*, *norming* and *performing* this was true for face-to-face and e-mail interactions, however, for *storming*, the medium term theme was the most frequent and not long term for e-mail interactions.

The analysis also reveals that for face-to-face interactions, for each of the phases, the highest frequency was found at the 1st face-to-face meeting. However, for e-mail interactions, for phases *storming*, *norming* and *performing*, the highest frequency was found after the 1st face-to-face meeting. Also, only the *norming* phase was very close in frequency after the 3rd face-to-face meeting (3/7 = 43%) opposed to (4/7 = 57%) after the 1st face-to-face meeting.

Looking at the phases in relation to time shows that for each of the phases for work package 2, the long term themes were the most frequent. This was true for all phases in the face-to-face and e-mail interactions. However, what is interesting for phases *storming*, *norming* and *performing*, the medium term theme was the most frequent and not long term.

The analysis also reveals that for face-to-face interactions, for all phases, the highest frequency was found at the 2nd face-to-face meeting. However, for the *forming* phase, the same frequency was also found at the 3rd face-to-face meeting (50%). Also, only the *performing* phase was very close in frequency at the 3rd face-to-face meeting (1/3 = 33%) opposed to (2/3 = 67%) at the 2nd face-to-face meeting. For e-mail interactions, for phases *storming*, *norming* and *performing*, the highest frequency was found after the 1st, 2nd and 3rd face-to-face meeting. However, for phase *storming*, the same frequency was found after the 2nd and 3rd face-to-face meeting. This was also observed for phase *norming*, where the same frequency was found after the 1st and 3rd face-to-face meeting.

Looking at the phases in relation to time shows that for all phases for work packages 3-6, the long term themes were the most frequent. This was true for all phases in the face-to-face and e-mail interactions.

The analysis also reveals that for work package 3, for face-to-face interactions, for all phases, the highest frequency was found at the 3rd and 4th face-to-face meetings. For e-mail interactions, for all phases the highest frequency was found after all of the face-to-face meetings. However, phase *performing* was found with identical frequencies after the 2nd, 3rd and 4th face-to-face meeting. Also, only the *performing* phase was very close in frequency after the 1st face-to-face meeting (2/11 = 18%) opposed to (3/11 = 27%) after the 2nd, 3rd and 4th face-to-face meeting.

The analysis also reveals that for work package 4, for face-to-face interactions, for all phases, the highest frequency was found at the 2nd face-to-face meeting. Also, only the *performing* phase was very close in frequency after the 1st and 4th face-to-face meeting (2/7 = 29%) opposed to (3/7 = 43%) at the 2nd face-to-face meeting. For e-mail interactions for phases *storming* and *norming*, the highest frequency was found after the 2nd face-to-face meeting. For phase *performing*, the highest frequency was found after the 3rd face-to-face meeting.

The analysis also reveals that for work package 5, for face-to-face interactions, for all phases the highest frequency was found at the 3rd face-to-face meeting. For e-mail interactions, the highest frequency was found after the 3rd and 4th face-to-face meeting. Also, only the *performing* phase was very close in frequency after the 2nd face-to-face meeting (1/3 = 33%) opposed to (2/3 = 67%) after the 3rd face-to-face meeting.

The analysis also reveals that for work package 6, for face-to-face interactions, for all phases the highest frequency was found at the 1st, 2nd and 4th face-to-face meetings. *Storming* was found at the 2nd and 3rd face-to-face meeting, both with identical frequencies (5/12 = 42%). *Performing* was found at the 1st and 4th face-to-face meeting, both with identical frequencies (2/6 =33%). Also, only the *performing* phase was very close in frequency at the 2nd and 3rd face-to-face meeting (1/6 = 17%) opposed to (2/6 = 33%) at the 1st and 4th face-to-face meeting. For e-mail interactions, the highest frequency was found after the 2nd, 3rd and 4th face-to-face meeting. *Performing* was found with identical frequencies after the 3rd and 4th face-to-face meeting. Also, the *norming* phase was very close in frequency after the 1st face-to-face meeting (1/3 = 33%) opposed to (2/3 = 67%) after the 2nd face-to-face meeting. The *performing* phase was also very close in frequency after the 1st face-to-face meeting (1/5 = 20%) opposed to (2/5 = 40%) after the 3rd and 4th face-to-face meeting.

Looking at the phases in relation to time shows that for phases *forming*, *storming*, *norming* and *performing* for work package 7, the long term themes were the most frequent. This was only true for face-to-face interactions. However, for phases *storming*, *norming* and *performing*, the medium term themes were the most frequent for e-mail interactions.

The analysis also reveals that for phases *forming*, *storming* and *norming*, the highest frequency was found at the 1st face-to-face meeting. However, *norming* was also found with an identical frequency at the 4th face-to-face meeting as well. Only the *performing* phase was found with the highest frequency at the 3rd face-to-face meeting. For e-mail interactions, for phases *storming*, *norming* and *performing*, the highest frequency was found after the 2nd face-to-face meeting. Also, only the *performing* phase was very close in frequency after the 3rd face-to-face meeting (12/34 = 35%) opposed to (13/34 = 38%) after the 2nd face-to-face meeting.

Looking at the phases in relation to time shows that for phases *forming*, *storming*, *norming* and *performing* for category other, the long medium term themes were the most frequent for e-mail interactions. This was also true for face-to-face interactions.

The analysis also reveals that for face-to-face interactions the *norming* phase was found at the 3rd face-to-face meeting. Also, for e-mail interactions, for the *norming* phase the highest frequency was found after the 3rd face-to-face meeting.

Overall, no interpretations can be made why some work packages found evidence of the phases with the highest frequencies at certain meetings and not others, as all work packages did not start at the same time. However, some interesting results have been reported.

The next section looks at patterns between Cramton's problems in relation to the phases.

7.2 .2 Looking at Cramton's problems in relation to the phases

This section looks at the patterns between each of the work packages and Cramton's problems in relation to the phases. Figure 7.9 shows a graphical representation of Cramton's problems in relation to the phases by work package.

Figure 7.9: Cramton's problems per work package in relation to the phases

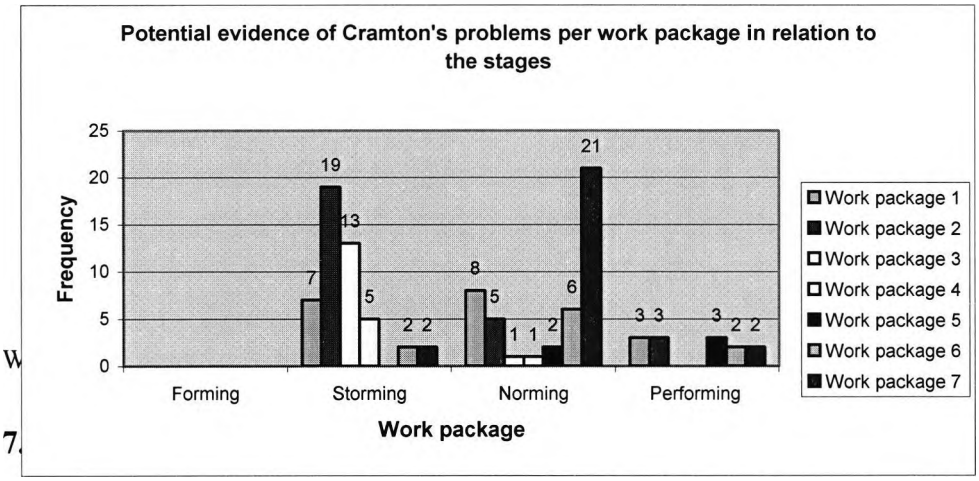


Table 7.1 lists the potential problems found in this work package.

	Time	Problem	Phase
Discourse chunk from the 1st face-to-face meeting			
Change to the agenda (17/12/01)	Short term	***Difficulty in communicating the salience of information.*** This was observed when Ronnie reported that the morning's meeting had been a waste of time to him. This situation shows that there were differences amongst the salience of what the administrative co-ordinator of the project believed team members would find interesting and useful, and the reaction of team members like Ronnie who had reported that they did not find the meeting contents useful.	**Storming** – Ronnie said that the task of looking at technology was not for everyone.
Developing a plan of future work (18/12/01)	Long term	*Unevenly distributed information.* This was observed when Hazel proposed work to team members who had already left the meeting. However, Hazel was going to place the plan onto the FTP site, so that everyone could access it.	**Norming** – Hazel said that user partners need to complete questionnaires.
Textual chunk after the first face-to-face meeting			
Detailed work plan for the next 3 months (Typed up plan discussed during the second day of the face-to-face meeting)	Medium term	*Difficulty in communicating the salience of information.* This was observed in message 7 sent by Hazel on 11/1/02, where she mentioned that she had added in the changes Annie proposed, but did not understand why they were necessary. This message highlighted that the salience for requesting the change was higher to Annie than Hazel.	**Norming** – In message 7, Hazel adjusted the plan according to the changes proposed by Annie
		Difficulty in interpreting the meaning of silence. This was observed in message 7 as well, when Hazel mentioned that she did not know if the messages that were being sent were being received or not by partner 4 as they had not acknowledged her messages.	**Storming** – In message 7, Hazel mentioned that she did not know if partner 4 was receiving the messages or not.
Report on problems encountered by visually impaired people on websites	Long term	*Unevenly distributed information.* This problem was observed when Thomas sent message *6* to the team, informing them of the report he attached to the message. Thomas apologised that this document was in French. As everyone may not be able to read French, relevant information was not evenly distributed to team members who may have been interested in the report.	**Performing** – In message 6, Thomas sent a document in French and he said that he would translate it later on.
		Difficulty in communicating the salience of information. Message *6* can also be used to show potential evidence of this problem. Salience for the usefulness of the attachment contents on the report sent by Thomas was higher for him than possibly to some of his receivers, as everyone in the team may not read French.	**Performing** – In message 6, Thomas said he would translate the French document later on.
Protocol of evaluation for e-learning	Long term	*Difficulty in communicating the salience of information.* Message *25* sent by Hazel on 7/2/02 suggested that the salience of the message Desmond had originally sent to Hazel on a one-on-one basis was higher for him than to Hazel the receiver. This highlights the need to write clear messages.	**Norming** – In message 25, Hazel responded to Desmond's mail to the team.
Disourse chunk from the 2nd face-to-face meeting			
Informing of late arrival (14/3/02)	Short term	*Unevenly distributed information.* This was observed when Hazel informed Jack that they could start the meeting without Mary, who was going to be late arriving. In this situation, Mary may have missed some of the information, which was communicated to the team in her absence. However, Mary had arrived by 10am and did not miss a lot of the meeting.	**Norming** – Hazel said that Mary will be late, but they can start without her.
Review of work package 1, Questionnaire data gathered (14/3/02)	Long term	*Difficulty in communicating the salience of information.* This was observed after Hazel informed the team that the response, which was received, had been less than the target expected. Only the German partners had responded. She was hoping to receive information from partners 3 and 4.	**Storming** - Hazel mentioned that the responses she received were less than she expected
Overview of the evaluation sessions (14/3/02)	Long term	*Unevenly distributed information.* This was observed when Mary said team members could see the questions, which were included on the presentation slide. However, for those team members that were visually impaired and blind, this would not have conveyed salient information to them. Mary should have read out some examples.	**Performing** – Mary provided a summary of the evaluation.
Overview of circulated report (14/3/02)	Long term	*Unevenly distributed information. This* was observed when Mary asked team members if they could read what was included at the bottom of the presentation. Hazel said yes, Morris said no. This situation suggests that unevenly distributed information was presented to some team members. Morris was blind so he would not have been able to see the information even if it had been well presented.	**Norming** – Mary asked if everyone could see to the end of the presentation.
		Difficulty in communicating the salience of information. This was observed when Mary mentioned the term *'accessible templates'* and the translator had to ask on Michael's behalf what was meant by the term *'template'*. Charles also questioned what the term *'accessible*	**Norming** – Explanations were provided to the terms Mary used.

		templates' meant. In this situation the salience of the term was higher for Mary then to other team members.	
Discourse chunk from the 3rd face-to-face meeting			
Presentation on work package 1 (17/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed in three situations. One, a request from Ronnie for Erin to speak clearly as English was not their first language. Salience was far higher for Erin who thought that she was clearly presenting an overview of their work on work package 1, than to other team members, particularly those that did not use English as their first language. Two when Desmond requested Charles to enlarge the font size on his presentation slides. Salience for font size was higher for Charles the presenter, than for the rest of the team. Desmond was visually impaired. Three when Charles informed the team that he could not understand why no one responded to his first request for comments, when he circulated the document to the team a month ago. In this situation the salience for the request was higher to Charles than the rest of the team.	**Storming** – Ronnie asked Erin to speak clearer as English was not their first language. **Norming** – Desmond asked for the font to be enlarged. **Storming** – Charles did not know why no one responded for comments on the requirements. Only partner 3 had prioritised the requirements.
Textual chunk after the 3rd face-to-face meeting			
Unmet learning needs questionnaire	Medium term	*Difficulty in interpreting the meaning of silence.* This problem was interpreted from message *35* sent by Mary when she said that she had not received any more questionnaires since the meeting in Madrid.	**Storming** – In message 35, Mary mentioned that no questionnaires had been received since the last meeting.
		Difficulty in communicating the salience of information. Message *35* sent by Mary highlights that the salience for receiving completed questionnaires was higher to Mary the receiver, then to who the requests were made too	**Storming** – In message 35, Mary mentioned that no questionnaires had been received since the last meeting.
Discourse chunk from the 4th face-to-face meeting			
Review of work package 1 (12/9/02)	Medium term	*Difficulty in communicating the salience of information.* This was observed when Morris informed the team that the e-mail sent by Mary earlier in that week, was not clear as to what she expected from him. In this situation, the request was more salient to Mary, the requester, than to Morris, who the information was being requested from.	**Norming** – Morris clarified with Mary what Adam should be doing.

Table 7.1: Potential problems of work package 1 and the phases

For work package 1 no *forming* phase was found in either face-to-face or e-mail interactions. However, the *storming*, *norming* and *performing* phases were found both in face-to-face and e-mail interactions. The *storming* phase was found in discourse chunks from the 1st face-to-face meeting, textual chunks after the 1st face-to-face meeting, discourse chunks from the 2nd and 3rd face-to-face meeting and textual chunks after the 3rd face-to-face meeting. The *norming* phase was found in discourse chunks from the 1st face-to-face meeting, textual chunks after the 1st face-to-face meeting and discourse chunks from the 2nd, 3rd and 4th face-to-face meeting. The *performing* phase was only found in textual chunks after the 1st face-to-face meeting and discourse chunks from the 2nd face-to-face meeting.

For the *storming* phase, the highest frequency was found in discourse chunks from the 3rd face-to-face meeting and textual chunks after the 3rd face-to-face meeting. Both were found 29% each (2/7). For the *norming* phase, the highest frequency was found in discourse chunks from the 2nd face-to-face meeting (3/8 = 38%). For the *performing* phase, the highest frequency was found in textual chunks after the 1st face-to-face meeting (2/3 = 67%).

Work package 2 is examined next.

7.2.2.2 Work package 2

Table 7.2 lists the potential problems found in this work package.

	Time	Problem	Phase
Discourse chunk from the 1st face-to-face meeting			
Short presentation by each of the partners on what work they have done in the last 3 months – Partner 3 on work packages 2 and 6 (18/12/01)	Long term	*Difficulty in communicating the salience of information.* This was observed in two situations. One, when Desmond said that information had been provided to them on 21st November, but Annie said that according to Christopher they were expecting more technical based information not user based. In this situation the salience of the document was higher for the author of the document than to all team members. Two, when Annie said that they had requested the manual, however no one had sent it to them. In this situation the salience of making the request for information was higher for the person making the request, than who the request was being made too.	**Storming** – Hazel and Desmond say the information required by Annie was already provided by Desmond. **Storming** – Annie said that she had asked for the manual but had not received it.
		Difficulty in interpreting the meaning of silence. Situation two above can display potential evidence of this problem. In this situation Annie may have been wondering why team members were not fulfilling the request that she had made.	**Storming** – Annie said that she had asked for the manual but had not received it.
Developing a plan of future work (18/12/01)	Long term	*Unevenly distributed information.* This was observed when Hazel proposed work to team members who had already left the meeting. However, Hazel was going to place the plan onto the FTP site, so that everyone could access it.	**Norming** - Hazel said that partners 1 and 2 have expressed the need to understand how screen readers work and how it will interact with the project application. Partners 6 and 3 are going to support partners 1 and 2 who had already left the meeting.
Discourse chunks from the 2nd face-to-face meeting			
Review of work package 2 (14/3/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Hazel asked for clarification on whether voice integration was voice input. Annie, responded by saying *'yes'*, it was both input and output. This situation shows how different team members can refer to terms in different ways.	**Performing** – Annie provided a review of the work undertaken for this work package.
Presentation of a demo (14/3/02)	Long term	*Difficulty in communicating the salience of information.* This was observed in three situations. One when Paul used the term *'voice input'*, and Annie asked if he was referring to *'recognition'*. This situation showed that the saliency of the term Paul had used was higher for him, as Annie had used a different term Two when team members such as Paul, Ronnie and Hazel made comments stating that what they were being shown in the demonstrations is not novel. It appears there was different salience for where the added value was for the technical partners developing the product and partners from user group organisations. Three when Charles informed the team that he had sent a draft version of a document to technical partners which he received no comments on.	**Performing** – Showing the tool that is developed. **Storming** – Paul said that they already know what is being shown. It is their daily bread and butter, for him and other blind people. **Storming** – Paul again said that what is being demonstrated is already available. **Storming** – Ronnie said that they are being shown things that they already know very well. **Storming** – Paul said he is not being shown anything different. **Storming** – Hazel said that what she is currently being shown is less than what the current version of Jaws can deliver. **Storming** – Charles said he sent his first version of the document to the technical partners but did not receive any comments.
		Difficulty in interpreting the meaning of silence. This was observed when Charles informed the team that he had sent a draft version of a document to technical partners which he received no comments on. In this situation Charles would not have known why no comments were being sent to him	**Storming** – Charles said he sent his first version of the document to the technical partners but did not receive any comments.
Presentation on what project voice solution can provide (15/3/02)	Long term	*Difficulty in communicating the salience of information.* This was observed in the following four situations. One when Paul said that the document that they had	**Storming** – Desmond and

		circulated should have been referred to when making preparations for this presentation. Two when Paul reported that what Annie was saying regarding screen readers not being able to read lists was not true. Also when Ronnie mentioned that Annie had missed out an important document when preparing for this presentation. Three when the presentation by Annie was not completed, and was not returned back to, following the presentation of Charles as James had suggested. In all situations the salience was higher for those that raised the issue than who it concerned.	Paul referred to an existing document, saying that Annie should have looked at it. **Storming** – Paul disagreed on Annie's comments about drop down menus and lists. **Storming** – Ronnie said an important document had not been considered. **Storming** – Ronnie suggested that the presentation is not continued.
Textual chunk after the 2nd face-to-face meeting			
ConPalabras plug-in	Long term	*Unevenly distributed information.* This was observed in message *41*, when Mary said she had problems accessing information from one of the addresses given requesting another address to be provided.	**Storming** – In message 41, Mary said that she could not download the plug-in. She asked if there was another site it could be downloaded from.
Discourse chunk from the 3rd face-to-face meeting			
Review of work by work packages 2/3/4 (6/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Annie said *'Hava scripts'* and Paul had to ask what she had said. The salience of the word *'Hava'* was greater for Annie as she was Spanish, than to the rest of the team. Annie corrected herself by saying *'Java'* shortly afterwards.	**Performing** – Annie provided a review of items for work package 2

Table 7.2: Potential problems of work package 2 and the phases

For work package 2 no *forming* phase was found in either face-to-face or e-mail interactions. However, the *storming*, *norming* and *performing* phases were found in face-to-face and e-mail interactions. The *storming* phase was found in discourse chunks from the 1st and 2nd face-to-face meeting and textual chunks after the 2nd face-to-face meeting. The *norming* phase was only found in discourse chunks from the 1st face-to-face meeting. The *performing* phase was only found in discourse chunks from the 2nd and 3rd face-to-face meeting.

For the *storming* phase, the highest frequency was found in discourse chunks from the 2nd face-to-face meeting (10/19 = 53%). For the *performing* phase, the highest frequency was found in discourse chunks from the 2nd face-to-face meeting (2/3 = 67%).

Work package 3 is examined next.

7.2.2.3 Work package 3

Table 7.3 lists the potential problems found in this work package.

	Time	Problem	Phase
Discourse chunk from the 2nd face-to-face meeting			
Presentation by partner 9 (15/3/02)	Long term	*Difficulty in interpreting the salience of information.* This was observed when Hazel asked Kenneth if what she had said made sense. Kenneth said it did and Paul said it did not. In this situation the salience of what was said was higher for Hazel and Kenneth than to Paul.	**Storming** – Paul said Hazel's explanations did not make any sense to him.
Discourse chunk from the 3rd face-to-face meeting			
Presentation by work package 1 (7/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Charles informed the team that he could not understand why no one responded to his first request for comments, when he circulated the document to the team a month ago. In this situation the salience for the request was higher to Charles than the rest of the team.	**Storming** – Charles said that he does not understand why no one responded to comments on the requirements. Only partner 3 did.

Discussion on issues emerging from work package 1 (7/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Kenneth questioned James why partner 2 did not share relevant information to the team in their allocated time for their presentation on review of work done in work packages 2/3/4. James said that partner 2 could provide this information if it would be useful. This situation demonstrates the differences between the salience of presentations delivered and expectations of team members when hearing that presentation.	**Storming** – Kenneth said why is information delivered today, not presented yesterday, when there was time dedicated to them in the agenda.
Requirements for the tool from a technical point of view (7/6/02)	Long term	*Failure to communicate contextual information.* This was observed when Annie informed the team that if anyone expected to see something in particular, they should be informed before hand, to allow preparations to be made.	**Storming** – Annie said in future meetings, to inform them before hand on what is expected from them.
Textual chunk after the 3rd face-to-face meeting			
Authoring tool requirements	Long term	*Difficulty in communicating the salience of information.* This was observed in message *12* sent by Kenneth where he said that the document sent by Annie in message *11* was not at the same level as what was mentioned during the face-to-face meeting. Geoff had presented this information during the face-to-face meeting. In this situation the salience of what was included in this message was higher for Annie, the writer of the document, than to the receivers of the document, for example, Kenneth, who raised this matter in an e-mail he sent to the team.	**Storming** – In message 12, Kenneth said that the document in message 11 does not present the same level of detail as presented during the meeting in Madrid.
Discourse chunk from the 4th face-to-face meeting			
Demonstration of the prototype (12/9/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Kenneth reported that those people who cannot see should comment on what was being shown by the technical partners, so that feedback could be gained from a potential user. Hazel raised this point at the December meeting, and it appears that the suggestion had not been put into practice. In this situation it appears that the request was far more salient to those that originally made the request, than to who it was made too.	**Storming** – Kenneth said that it is difficult to give his opinion on just two short samples. **Storming** – Kenneth said it would have been nice to have seen a live demo. **Norming** – Kenneth proposed that those who cannot see to comment on what was being shown. **Storming** – Kenneth proposed those who cannot see to comment on what is being shown. Hazel had also proposed this during the December face-to-face meeting.
Creating a link for stylesheets (12/9/02)	Long term	*Unevenly distributed information.* This was observed when Geoff continued his presentation in Spanish and not English. All team members did not speak Spanish so information was unevenly distributed.	**Storming** – Geoff started speaking in Spanish which all team members did not understand.
		Difficulty in communicating the salience of information. This was observed when Geoff continued his presentation in Spanish and not English. All team members did not speak Spanish. The salience of speaking Spanish was higher to the speaker than to the rest of the team.	**Storming** – Geoff started speaking in Spanish which all team members did not understand.
Presentation of partner 4 by Michael's translator (12/9/02)	Long term	*Difficulty in communicating the salience of information.* This was observed in two situations. One when Jack suggested the presented work could be used as part of one of the deliverables for work package 1. Hazel, however reported that most of that information had already been presented. In this situation it also appears that the Italian partners did not use information circulated by Hazel and Mary. Two when Kenneth reported the problem of having text disappear at the bottom of the page. In this situation the salience of the document's format was higher for the producer of that document than to the receiver, especially in terms of accessibility.	**Storming** – Hazel said that most of what was presented was already presented as part of the material for D1.1. **Storming** – Kenneth reported on the problems of having text disappear at the bottom of the page.

Table 7.3: Potential problems of work package 3 and the phases

For work package 3 no *forming* or *performing* phases were found in either face-to-face or e-mail interactions. However, the *storming* and *norming* phases were found in face-to-face and e-mail interactions. The *storming* phase was found in discourse chunks from the 2nd and 3rd face-to-face meeting, textual chunks after the 3rd face-to-face meeting and discourse chunks from the 4th face-to-face meeting. The *norming* phase was found in discourse chunks from the 4th face-to-face meeting.

For the *storming* phase, the highest frequency was found in discourse chunks from the 4th face-to-face meeting (7/13 = 54%).

Work package 4 is examined next.

7.2.2.4 Work package 4

Table 7.4 lists the potential problems found in this work package.

	Time	Problem	Phase
Discourse chunk from the 1st face-to-face meeting			
Short presentation by each of the partners on what work they have done in the last 3 months – Partner 7 (18/12/01)	Long term	*Difficulty in communicating the salience of information.* This was observed when Morris *said '...because as we understand it we do not think the project plays for us to design the e-learning content'*. This situation shows that there was a difference in the salience of that information. Partner 7 was responsible for this task, according to the allocation of initial tasks as shown in chapter 4. The situation illustrates that the salience for task allocation was higher to those that originally made the plan for the project (partner 1), than to the partner who this work was allocated too (partner 7 in this instance).	**Norming** – Morris said look at the content and you can negotiate with owners. Charles said that he can turn content into voiceXML. **Storming** – Morris does not feel that they should be designing the e-learning content.
Discourse chunk from the 2nd face-to-face meeting			
Review of work by work packages 2/3/4 (14/3/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Ronnie commented that he was confused because he was expected a new solution incorporating existing tools. In this situation the demonstrations were more salient to the technical partners than to the rest of the team.	**Storming** – Ronnie said that the discussions were confusing
Discourse chunk from the 3rd face-to-face meeting			
Presentation of the partner 7 portal (6/6/02)	Long term	Communicating *the salience of information.* This was observed when Morris said that the colour combination used in the design had been selected to suit Adam's needs. Adam is visually impaired. Kenneth said that he found the chosen colours difficult to believe meeting ones needs. In this situation the salience for selecting the colours for the portal was higher for Morris and Adam who were responsible for the development, than to team members such as Kenneth who saw that it was difficult to see why those colours had been chosen.	**Storming** – Kenneth disagreed over the choice of colours. **Storming** – Kenneth raised his concerns about the stylesheets and the white space.
Discussion of review questions from the review report (7/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Mary suggested that different partners had different understanding for the meaning of the term portal. This situation highlights that the term e-learning portal was more salient to some partners than others.	**Storming** – Different partners had a different understanding on what an e-learning portal is.

Table 7.4: Potential problems of work package 4 and the phases

For work package 4 no *forming* phase was found in either face-to-face or e-mail interactions. However, the *storming* and *norming* phases were found in face-to-face and e-mail interactions. The storming phase was found in discourse chunks from the 1st, 2nd and 3rd face-to-face meeting. The *norming* phase was only found in discourse chunks from the 1st face-to-face meeting.

For the *storming* phase, the highest frequency was found in discourse chunks from the 3rd face-to-face meeting (3/5 = 60%).

Work package 5 is examined next.

7.2.2.5 Work package 5

Table 7.5 lists the potential problems found in this work package.

	Time	Problem	Phase

Discourse chunk from the 2nd face-to-face meeting			
Overview of evaluation sessions (14/3/02)	Long term	*Unevenly distributed information.* This was observed when Mary said team members could see the questions, which were included on the presentation slide. However, for those team members that were visually impaired and blind, this would not have conveyed salient information to them. Mary should have read out some examples.	**Performing** – Mary provided a summary of her findings.
Discourse chunk from the 3rd face-to-face meeting			
Presentation on work package 1 (7/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed in two situations. One, a request from Ronnie for Erin to speak clearly as English was not their first language. Salience was far higher for Erin who thought that she was clearly presenting an overview of their work on work package 1, than to other team members, particularly those that did not use English as their first language. Two when Desmond requested Charles to enlarge the font size on his presentation slides. Salience for font size was higher for Charles the presenter, than for the rest of the team. Desmond was visually impaired.	**Performing** – Erin and Charles provided a summary of the evaluation. **Storming** – Erin not talking loudly enough. **Storming** – A request was made for the font to be enlarged by Desmond.
Textual chunk after the 3rd face-to-face meeting			
Evaluation of the e-learning portal	Long term	*Difficulty in communicating the salience of information.* This was observed in message 50 when Adam informs Mary and the team that he noticed confusion about the evaluation of the portal.	**Performing** – In message 50, the evaluation is talked about.

Table 7.5: Potential problems of work package 5 and the phases

For work package 5 no *forming* and *norming* phases were found in either face-to-face or e-mail interactions. However, the *storming* and *performing* phases were found in face-to-face and e-mail interactions. The *storming* phase was only found in discourse chunks from the 3rd face-to-face meeting. The *performing* phase was found in discourse chunks from the 2nd and 3rd face-to-face meeting and textual chunks after the 3rd face-to-face meeting.

For the *performing* phase, all time periods had an equal frequency (1/3 =33%).

Work package 6 is examined next.

7.2.2.6 Work package 6

Table 7.6 lists the potential problems found in this work package.

	Time	**Problem**	**Phase**
Discourse chunk from the 1st face-to-face meeting			
Dissemination activities (18/12/01)	Long term	*Difficulty in communicating the salience of information.* This was observed when Lucy asked Jack what *'aspi meant'*. In this situation the salience for using the acronyms was higher for the speaker, Jack than the listeners. In his talk, Jack used the acronym without explaining what the letters represented.	**Performing** – An overview of the dissemination work done was given. There had been no problems.
Discourse chunk from the 2nd face-to-face meeting			
Dissemination (15/3/02)	Long term	*Unevenly distributed information.* This was observed when Jack showed a picture to the team from the European Conference for Disability in September. Those team members who were blind would not have seen this information.	**Performing** – Overview of what dissemination had been produced was provided.
Project brochure (15/3/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Jack asked about a paper. The name of the paper was not given and Paul had to ask what paper he was referring to. In this situation the salience of the paper which was being referred to was more salient to Hazel and Jack, than to Paul who had to ask.	**Storming** – Paul had to ask the name of the paper that Jack was referring too.
Textual chunk after the 2nd face-to-face meeting			
Publications	Long term	*Difficulty in communicating the salience of information.* This was observed in message 4, when Jason informed Fabian that he (Fabian) had missed the information that was sent from partner 9 a few weeks ago. In this situation the salience of sending the information was higher for	**Storming** – In message 2, the lack of contributions for publications was mentioned. Also message 5, where it said that

		Jason the sender, than the receiver, Fabian.	material had been produced for publication.
Discourse chunk from the 3rd face-to-face meeting			
Work package 6: Dissemination, Standardisation and Exploitation (6/6/02)	Long term	*Difficulty in communicating the salience of information.* This was observed in three situations. One when Ronnie reported to Fabian that all the necessary information that he required had already been provided by him. In this situation, the salience of requesting information was higher for Fabian than to Ronnie whom information was being requested from. Fabian should have been explicit in the information that he required from Ronnie. Two when Fabian was referring to a photograph and identifying the Spanish director of science and technology. In this situation visually impaired and blind team members would not be able to see this information. Three when Paul raised the issue that they had already spoke about using the project to people outside of the team, and the importance of showing information to team members before and not after it has been shown. A similar discussion took place at the 2nd face-to-face meeting. This situation suggests that the salience of team members being informed was higher for the team members who were not shown the information before, than to who was producing this information for people outside of the project team, to share news about the project. Related to example 3, information shown outside of the team, Kenneth also raised this point, when asking about an abstract. Paul reacted to this by saying that this issue was appearing repeatedly in the discussions.	**Storming** – Ronnie reporting to Fabian. **Storming** – Referring to a photograph. **Norming** – Kenneth and Paul say that information must be shown beforehand and not after.
		Unevenly distributed information. When Fabian was referring to a photograph and identifying the Spanish director of science and technology. In this situation visually impaired and blind team members would not be able to see this information so information may be unevenly distributed. Unevenly distributed information was observed when comments were made that information should be shown before and not after	**Storming** – Receiving information after, but not before.
Discourse chunk from the 4th face-to-face meeting			
Work package 6 (13/9/02)	Long term	*Difficulty in communicating the salience of information.* This was observed when Ronnie had brought this issue to attention when telling Jack that there was a need to have a discussion regarding the problems of exploitation. Ronnie mentioned that from the previous day's meeting it came to light that some team members had different views and approaches regarding this activity. In this theme, perhaps the salience of what team members were required to do was higher for Jack than to others in the team.	**Storming** – Ronnie said that it is important to spend more time on exploitation. **Norming** – Jack said that they would spend more time on exploitation at the meeting in Verona.

Table 7.6: Potential problems of work package 6 and the phases

For work package 6 no *forming* phase was found in either face-to-face or e-mail interactions. However, the *storming*, *norming* and *performing* phases were found in face-to-face and e-mail interactions. The *storming* phase was found in discourse chunks from the 2nd face-to-face meeting, textual chunks after the 2nd face-to-face meeting and discourse chunks from the 3rd and 4th face-to-face meeting. The *norming* phase was found in discourse chunks from the 3rd and 4th face-to-face meeting. The *performing* phase was found in discourse chunks from the 1stand 2nd face-to-face meeting.

For the *storming* phase, the highest frequency was found in discourse chunks from the 3rd face-to-face meeting and textual chunks after the 3rd face-to-face meeting (3/6 = 50%). The *norming* and *performing* phases both had a frequency of 50% (1/2).

Work package 7 is examined next.

7.2.2.7 Work package 7

Table 7.7 lists the potential problems found in this work package.

	Time	Problem	Phase

Discourse chunk from the 1st face-to-face meeting			
FTP site (18/12/01)	Long term	*Failure to communicate contextual information.* It is not known if any of the issues which were raised during this meeting had been discussed during the kick off meeting. Issues concerning the accessibility of document formats identified potential evidence of this problem. Those team members who had a problem viewing certain document formats should have raised this at the outset of the team's interactions together, to ensure that they were receiving formats which were accessible to them.	**Storming** – Lucy and Ronnie said that they are unable to read PDF documents.
Project logo (18/12/01)	Short term	*Difficulty in communicating the salience of information.* This was observed when Hazel and Charlotte inform Jack that they cannot see the logo, which is being shown to the team. There was higher salience for Jack who was showing the logo to the team, than to who it was being shown too.	**Storming** – Jack is informed that some members cannot see the logo that he is referring to.
Communication amongst the team (18/12/01)	Long term	*Difficulty in communicating the salience of information.* This was observed when Jack reported that communication is always important, and Annie said that although this is true, there is no point in asking for documentation if no one gives it. In this situation the salience for requesting the information was higher for the person seeking it, than to the person sending it.	**Storming** – Annie said that there is no point in asking for information, if it is not provided.
		Difficulty in interpreting the meaning of silence. This was observed when Jack reported that communication is always important, and Annie said that although this is true, there is no point in asking for documentation if no one gives it. In this situation, silence would leave the person who requested the information wondering why their request had not been fulfilled.	**Storming** – Annie said that there is no point in asking for information, if it is not provided. **Norming** – To inform Jack if you receive no response or that there is something that you do not understand.
Project mailing list address (18/12/01)	Long term	*Unevenly distributed information.* This was observed when Desmond informed Jack that Paul was not included on the mailing list, and requested if he could be added. In this situation Paul was not receiving information sent to the team.	**Norming** – Names on the mailing list were checked and new names were added. **Storming** – Desmond informed Jack that Paul was not on the mailing list.
Reporting (18/12/01)	Long term	*Difficulty in interpreting the meaning silence.* This was observed when Annie said they had experienced a 20-day delay in their work because they had not received any input from the partners they are working with. In this situation Annie may not have understood why there was silence amongst team members, not communicating the requested information..	**Storming** – Annie said that they have a 20-day delay on work package 2 as they have received no input from partners.
		Failure to communicate contextual information. This was observed when Annie said that she did not know what people were working on. This situation reveals that team members were not sharing their contextual information with the team.	**Storming** – Annie said that they do not know what people are working on.
Next meeting date (18/12/01)	Medium term	*Unevenly distributed information.* This was observed when Ben asked if he could have a date for the next meeting, and Lucy thought it was the 18th and 19th March and Hazel said that she had the 11th and 12th March. This situation shows how two team members had different dates in mind for the next meeting. However, Lucy did make it clear that she thought that the dates were the 18th and 19th and that this information was not confirmed.	**Storming** – Lucy thought that the next meeting was on the 18th and 19th of March. However, Hazel had the 11th and 12th of March down for the next meeting.
Textual chunk after the 1st face-to-face meeting			
Quarterly management report	Medium term	*Difficulty in communicating the salience of information.* This was observed in message *34*, sent by Jack where the salience for requesting contributions from partners was higher for Jack than to the rest of the project team, whom the request was being made too.	**Storming** – In message 34, Jack said that he had still not received the report from many of the partners
		Difficulty in interpreting the meaning of silence. This was also observed in message *34*, from above, sent by Jack who was awaiting contributions for the report.	**Storming** – In message 34, Jack said that he had still not received the report from many of the partners.
Amendment letter	Medium term	*Difficulty in communicating the salience of information.* This was observed in message *34*, where the salience for requesting the message was higher for Jack, than to the rest of the project team, whom the request was being made too.	**Storming** – In message 34, Jack said that they are still waiting for the letter.
		Difficulty in interpreting the meaning of silence. This was observed in message *34* as well. Jack did not know why people were not sending their information to him as he had requested, not being able to interpret why there was silence from team members.	**Storming** – In message 34, Jack said that they are still waiting for the letter.
Next meeting date	Medium term	*Difficulty in communicating the salience of information.* This was observed when Desmond sent message *4*, to the team proposing that the date of the meeting is changed, in order to allow the user group partners more time for their activities.	**Storming** – In message 4, Desmond suggested an alternative date for the next meeting.

Discourse chunk from the 2nd face-to-face meeting			
FTP site (15/3/02)	Long term	*Difficulty in interpreting the salience of information.* This was observed when Desmond informed Jack that information was sent to him to be added to the site which was not. In this situation the salience for Jack placing the documents onto the site was higher for Desmond than Jack, who the request was made to.	**Storming** – Desmond said that the file he gave to Jack was not placed on the server, so he did this himself.
		Difficulty in interpreting the meaning of silence. This was observed when Desmond informed Jack that information was sent to him to be added to the site which was not. Desmond did not know the reason for the silence, so he placed the documents onto it himself.	**Storming** – Desmond said that the file he gave to Jack was not placed on the server, so he did this himself.
Meeting minutes (15/3/02)	Long term	*Unevenly distributed information.* This was observed when Paul informed Jack that he did not receive the minutes for the London meeting. Jack suggested that this might have been because he was not on the mailing list.	**Storming** – Paul did not receive the meeting minutes.
Textual chunk after the 2nd face-to-face meeting			
Web page for the project	Long term	*Unevenly distributed information.* This was observed in message *41*, when Mary said she had problems accessing information from one of the addresses given.	**Performing** – In message 41, Mary sent her comments on accessing the site.
Special report	Medium term	*Difficulty in communicating the salience of information.* This was observed in message *26* when Thomas sent a message with nothing in the main body or had an attachment included. The subject title was *'comments about the special report'*. It appears that Thomas the sender of the message had higher salience, than those who received this blank message.	**Storming** – In message 26, the team may have been wondering why Thomas sent a blank message.
Quarterly report	Medium term	*Difficulty in communicating the salience of information.* This was observed in message *23* when Jack, said that there had not been many contributions from partners. It appears that Jack may have had higher salience requesting this information from team members, than to who the request was being made too.	**Storming** – In message 23, unfortunately there were not many contributions from the partners
Next meeting date	Medium term	*Difficulty in communicating the salience of information.* This was observed in messages *36* and *37* which mentioned that that 6th and 7th June would be difficult to attend, but had no problem with 3rd and 4th. In these messages the salience for selecting another date was higher for Jack than Hazel and Lucy.	**Storming** – In messages 36 and 37, there was disagreement found in what had been said regarding attendance to the meeting.
Discourse chunk from the 3rd face-to-face meeting			
Date of next meeting (7/6/02)	Medium term	*Difficulty in communicating the salience of information.* This was observed when there were proposals to hold weekend meetings. Team members had been informed both at this meeting and previous meetings that weekends are not convenient to hold meetings. In this theme salience for holding weekend meetings was greater for the requester than to members of the team.	**Storming** – Lucy suggested a weekend meeting.
Textual chunk after the 3rd face-to-face meeting			
Annex 1 updated		*Difficulty in communicating the salience of information.* This was observed in message *9* sent by Hazel which said that she was disappointed to receive a new version of the draft with none of the proposed changes incorporated into it, and no explanation why not. In this situation the salience for the changes to be made were higher for those that proposed it than who the request was made too.	**Storming** – In message 9, Hazel raised her disappointments.
Textual chunk after the 4th face-to-face meeting			
Amendment number 3	Medium term	*Difficulty in interpreting the meaning of silence.* This was observed in message *5* Jack sent. In this message he requested team members to send him an e-mail to inform him of their situation, in order to try and understand why there may be silence, and why he has not received the information he has requested.	**Performing** – The progress on the response requests for outstanding actions to be dealt with was mentioned

Table 7.7: Potential problems of work package 7 and the phases

For work package 7 no *forming* phase was found in either face-to-face or e-mail interactions. However, the *storming*, *norming* and *performing* phases were found both in face-to-face and e-mail interactions. The *storming* phase was found in discourse chunks from the 1st face-to-face meeting, textual chunks after the 1st face-to-face meeting, discourse chunks from the 2nd face-to-face meeting, textual chunks after the 2nd face-to-face meeting, discourse chunks from the 3rd face-to-face meeting and textual chunks after the 3rd and 4th face-to-face meeting. The *norming* phase was only found in discourse chunks from the 1st face-

to-face meeting. The *performing* phase was only found in textual chunks after the 2nd and 4th face-to-face meeting.

For the *storming* phase, the highest frequency was found in discourse chunks from the 3rd face-to-face meeting and textual chunks after the 3rd face-to-face meeting. Both were found 29% each (2/7). For the *norming* phase, the highest frequency was found in discourse chunks from the 2nd face-to-face meeting (3/8 = 38%). For the *performing* phase, the highest frequency was found in textual chunks after the 1st face-to-face meeting (2/3 = 67%).

The next section provides a summary of all the patterns which have been observed when looking at Cramton's problems in relation to the states.

7.2.2.8 Summary

The analysis reveals that for work package 1 for face-to-face interactions, out of the phases, the highest frequency was found at the 2nd face-to-face meeting in the *norming* phase (3/8 = 38%). However, for e-mail interactions, for phases *storming* and *performing*, the highest frequency was found after the 1st and 3rd face-to-face meeting (2/7 = 29%) and (2/3 = 67%). Also, the *storming* phase was very close in frequency at the 1st face-to-face meeting, after the 1st face-to-face meeting and at the 2nd face-to-face meeting, all with identical frequencies (1/7 = 14%) opposed to 29% after the 1st and 3rd face-to-face meeting. The *norming* phase also very close in frequency after the 2nd face-to-face meeting (2/8 = 25%) opposed to 38% at the 2nd face-to-face meeting. Lastly, the *performing* phase very close in frequency at the 2nd face-to-face meeting (1/3 = 33%) opposed to 67% after the 1st face-to-face meeting.

The analysis reveals that for work package 2 for face-to-face interactions, out of the phases, the highest frequency was found at the 2nd face-to-face meeting in the *storming* phase (10/19 = 53%). However, for e-mail interactions, only the *storming* phase was found after the 2nd face to-face meeting (1/19 = 5%). Also, the *performing* phase was very close in frequency at the 3rd face-to-face meeting (1/3 = 33%) opposed to 67% (2/3) at the 2nd face-to-face meeting.

The analysis reveals that for work package 3 for face-to-face interactions, out of the phases, the highest frequency was found at the 4th face-to-face meeting in the *storming* phase (7/13 = 54%). However, for e-mail interactions, only the *storming* phase was found after the 3rd face to-face meeting (1/13 = 8%).

The analysis reveals that for work package 4 for face-to-face interactions, out of the phases, the highest frequency was found at the 3rd face-to-face meeting in the *storming* phase (3/5 = 60%). No e-mail interactions took place after the face-to-face meetings.

The analysis reveals that for work package 5 for face-to-face interactions, out of the phases, the highest frequency was found at the 3rd face-to-face meeting in the *storming* phase (2/2 = 100%). However, for e-mail interactions, only the *performing* phase was found after the 3rd face to-face meeting (1/3 = 33%).

The analysis reveals that for work package 6 for face-to-face interactions, out of the phases, the highest frequency was found at the 3rd face-to-face meeting in the *storming* phase (3/6 = 50%). However, for e-mail interactions, only the *storming* phase was found after the 2nd face to-face meeting (1/6 = 17%).

The analysis reveals that for work package 7 for face-to-face interactions, out of the phases, the highest frequency was found at the 1st face-to-face meeting in the *storming* phase (8/21 = 38%). However, for e-mail interactions, only the *storming* phase was found after the 1st face to-face meeting (5/21 = 24%).

Overall, a pattern can be seen between the highest frequency and the timing of the project meetings and interactions that take place after the meetings by e-mail. That is as the meeting number increases, so does the frequency of potential evidence of Cramton's problems. This was true for the *storming*, *norming* and *performing* phases in work package 1. *Storming* and *performing* phases in work package 2. *Storming* and *norming* phases in work package 3. *Storming* phase in work package 4. *Storming* and *performing* phases in work packages 5 and 6. However, an exception to this was the *norming* phase in work packages 2, 4 and 7.

The next section look at patterns between Cramton's problems and time.

7.2.3 Looking at Cramton's problems in relation to time

For each work package now examined is potential evidence of Cramton's problems in relation to time. *Short term* refers to those areas that have no significance after the event has taken place (for example, dining plans for a particular evening). *Medium term* refers to those areas that have no significance after 3-months (for example, all activities directly related to the project). And *long term* refers to those areas that still have significance after 3-months. The 3-monthly period was selecting because the formal face-to-face consortium meetings took place once every 3-months. Therefore the same duration was applied to characterise the three different time periods.

Work package 1 is examined first.

7.2.3.1 Work package 1

In work package the highest frequency for *short* term themes was found at the 1st and 2nd face-to-face meeting (1/2 = 50%). The highest frequency for *medium* term themes was found after the 1st and 3rd face-to-face meeting and at the 4th face-to-face meeting, all with identical frequencies (1/3 = 33%). The highest frequency for *long* term themes was found at the 2nd face-to-face meeting (3/7 = 43%). Overall, the highest frequency was found in the long term themes after the 2nd face-to-face meeting.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 3rd face-to-face meeting and also in long term themes after the 3rd face-to-face meeting, both with identical frequencies (2/7 = 29%). For the *norming* phase the highest frequency was found in *long* term themes at the 2nd face-to-face meeting (2/8 = 25%). For the *performing* phase the highest frequency was found in *long* term themes after the 1st face-to-face meeting (2/3 = 67%).

Work package 2 is examined next.

7.2.3.2 Work package 2

In work package 2 there was no evidence of short term or medium term themes. The highest frequency for *long* term themes was found at the 1st and 2nd face-to-face meeting (3/8 = 38%). Overall, the highest frequency was therefore in the long term theme at the 1st and 2nd face-to-face meeting.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 2nd face-to-face meeting (10/19 = 53%). For the *norming* phase the highest frequency was found in *long* term themes at the 1st face-to-face meeting (5/5 = 100%). For the *performing* phase the highest frequency was found in *long* term themes at the 2nd face-to-face meeting (2/3 = 67%).

Work package 3 is examined next.

7.2.3.3 Work package 3

In work package 3 there was no evidence of short term or medium term themes. The highest frequency for *long* term themes was found at the 3rd and 4th face-to-face meeting (3/8 = 38%). Overall, the highest frequency was therefore in the *long* term theme at the 3rd and 4th face-to-face meeting.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 4th face-to-face meeting (7/13 = 54%). For the *norming* phase the highest frequency was also found in *long* term themes at the 4th face-to-face meeting (1/1 = 100%).

Work package 4 is examined next.

7.2.3.4 Work package 4

In work package 4 there was no evidence of short term or medium term themes. The highest frequency for *long* term themes was found at the 2nd face-to-face meeting (2/4 = 50%). Overall, the highest frequency was therefore in the *long* term theme at the 2nd face-to-face meeting.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 3rd face-to-face meeting (3/5 = 60%). For the *norming* phase the highest frequency was found in *long* term themes at the 1st face-to-face meeting (1/1 = 100%).

Work package 5 is examined next.

7.2.3.5 Work package 5

In work package 5 there was no evidence of short term or medium term themes. The highest frequency for *long* term themes was found at the 2nd and 3rd face-to-face meeting and after the 3rd face-to-face

meeting, all with identical frequencies (1/3 = 33%). Overall, the highest frequency was therefore in the *long* term theme at the 2nd and 3rd face-to-face meeting and after the 3rd face-to-face meeting.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 3rd face-to-face meeting (1/1 = 100%). For the *performing* phase the highest frequency was found in *long* term themes at the 2nd and 3rd face-to-face meeting and after the 3rd face-to-face meeting, all with identical frequencies (1/3 = 33%).

Work package 6 is examined next.

7.2.3.6 Work package 6

In work package there was no evidence of short term or medium term themes. The highest frequency for *long* term themes was found at the 2nd face-to-face meeting (2/6 = 33%). Overall, the highest frequency was therefore in the *long* term theme at the 2nd face-to-face meeting.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 3rd face-to-face meeting (3/6 = 50%). For the *norming* phase the highest frequency was found in *long* term themes at the 3rd and 4th face-to-face meeting, with identical frequencies (1/2 = 50%). For the *performing* phase the highest frequency was found in *long* term themes at the 1st and 2nd face-to-face meeting, with identical frequencies (1/2 = 50%).

Work package 7 is examined next.

7.2.3.7 Work package 7

In work package the 7 highest frequency for *short* term themes was found at the 1st face-to-face meeting (1/1 = 100%). The highest frequency for *medium* term themes was found after the 1st face-to-face meeting (4/10 = 40%). The highest frequency for *long* term themes was found at the 1st face-to-face meeting (4/8 = 50%). Overall, the highest frequency was found in the *medium* and *long* term themes at the 1st face-to-face meeting and after the 1st face-to-face meeting as they both had identical frequencies.

Examining the phases in relation to time when viewing potential evidence of Cramton's problems reveals that in the *storming* phase the highest frequency was found in *long* term themes at the 1st face-to-face meeting (6/21 = 29%). For the *norming* phase the highest frequency was also found in *long* term themes at the 1st face-to-face meeting (2/2 = 100%). For the *performing* phase the highest frequency was found in *long* term themes after the 2nd and 4th face-to-face meeting, with identical frequencies (1/2 = 50%).

The next section provides a summary of all the patterns which have been observed when looking at Cramton's problems in relation to time.

7.2.3.8 Summary

The analysis reveals that for work package 1 for e-mail interactions, long term themes, after the 1st face-to-face meeting (2/7 = 29%) was very close in frequency to the 2nd face-to-face meeting (3/7 = 43%).

The analysis reveals that for work package 4 for face-to-face interactions, long term themes, at the 1st and 2nd face-to-face meeting (1/4 = 25%) were very close in frequency to the 3rd face-to-face meeting (2/4 = 50%).

The analysis reveals that for work package 6 for face-to-face interactions and e-mail interactions, long term themes, identical frequencies were found after the 1st, 3rd and 4th face-to-face meeting and after the 2nd face-to-face meeting (1/6 = 17%) and was very close in frequency to the 2nd face-to-face meeting (2/6 = 33%).

The analysis reveals that for work package 7 for e-mail interactions, medium term themes, after the 2nd face-to-face meeting (3/10 = 30%) was very close in frequency to after the 1st face-to-face meeting (4/10 = 40%).

Overall, it can be seen that for all work packages that the highest number of Cramton's potential problems were found in long term themes. However, it must be noted that work package 7 had an identical number of the highest frequency themes for medium term and long term themes. This analysis reveals that there are patterns between the frequency of Cramton's problems and time.

The next section look at patterns between situations showing no growth in mutual understanding and the different phases.

7.2.4 Looking at no growth in mutual understanding in relation to the phases

For each work package now examined are situations showing no growth in mutual understanding and the different phases.

Work package 1 is examined first.

7.2.4.1 Work package 1

Table 7.8 presents evidence of situations showing no growth in mutual understanding and the phases.

Discourse chunk	No of situations observed showing no growth in mutual understanding	Phases
Partner 2 on work packages 2 and 6 (18/12/01)	1	**Storming** – Hazel said that she does not understand the limits of what the user requirements need to be.

Table 7.8: No growth situations and phases for work package 1

Work package 2 is examined next.

7.2.4.2 Work package 2

Table 7.9 presents evidence of situations showing no growth in mutual understanding and the phases.

Discourse chunk	No of situations observed showing no growth in mutual	Phases

	understanding	
Partner 9 (18/12/01)	2	**Storming** – Kenneth questioned the vision of the project. **Storming** – Hazel mentioned the struggles she experienced when writing the user requirements spec. She also questioned the user and screen reader interactions.
Partner 2 on work packages 2 and 6 (18/12/01)	2	**Storming** – Annie said in Madrid she thought it was clearer what this work package was about.
Presentation of a demo (14/3/02)	2	**Storming** – Annie said that they thought forms were difficult for blind people. She said Hazel told her this. **Storming** – Hazel said that she said the opposite, that forms were not difficult for blind people. **Storming** – Annie said they still do not know what to do.
Presentation on what the project voice solution can provide (14/3/02)	1	**Storming** – Ronnie says that an important document has not been considered.

Table 7.9: No growth situations and phases for work package 2

Work package 3 is examined next.

7.2.4.3 Work package 3

Table 7.10 presents evidence of situations showing no growth in mutual understanding and the phases.

Discourse chunk	No of situations observed showing no growth in mutual understanding	Phases
Review of work done for work packages 2/3/4 (6/6/02)	2	**Storming** – Morris had problems on what the plug-in can do that a traditional screen reader cannot. **Storming** – Ronnie said he is confused and is hearing something different to what he expected.
Requirements for the tool from a technical point of view (7/6/02)	1	**Storming** – Desmond and Annie talk about information required and Paul said that he still does not understand what is being discussed.
Presentation by partner 4's translator (12/9/02)	1	**Storming** – Translator finds it difficult to accept that blind people in Britain want to learn HTML.

Table 7.10: No growth situations and phases for work package 3

Work package 4 is examined next.

7.2.4.4 Work packages 4

Table 7.11 presents evidence of situations showing no growth in mutual understanding and the phases.

Discourse chunk	No of situations observed showing no growth in mutual understanding	Phases
Review of work done for work packages 2/3/4 (6/6/02)	1	**Storming** – Kenneth said that they are not moving forward or beyond what screen reader technology will do in the near future.

Table 7.11: No growth situations and phases for work package 4

Work package 5 is examined next.

7.2.4.5 Work packages 5

No evidence of situations showing no growth in mutual understanding.

Work package 6 is examined next.

7.2.4.6 Work package 6

Table 7.12 presents evidence of situations showing no growth in mutual understanding and the phases.

Discourse chunk	No of situations observed showing no growth in mutual understanding	Phases
Review of work package 6, dissemination activities (14/3/02)	1	**Storming** – Ronnie said they would have problems looking at the information on 28th of March.
Work package 6: Dissemination, standardisation and exploitation (6/6/02)	2	**Storming** – Information should always be received before, but not after **Norming**- Kenneth and Paul said that information must be shown beforehand and not after.
Work package 6 (13/9/02)	1	**Norming** – Jack said next time they will send a copy of documents they are sharing about the project team.

Table 7.12: No growth situations and phases for work package 6

Work package 7 is examined next.

7.2.4.7 Work package 7

Table 7.13 presents evidence of situations showing no growth in mutual understanding and the phases.

Discourse chunk	No of situations observed showing no growth in mutual understanding	Phases

Reporting (18/12/01)	1	**Storming** – Difficulty in selecting a time period for reporting.
Date of next meeting (7/6/02)	1	**Storming** – Lucy suggested a weekend meeting.

Table 7.13: No growth situations and phases for work package 7

The next section provides a summary of all the patterns which have been observed.

7.2.4.8 Summary

There is a pattern between potential evidence of Cramton's problems and the *storming* phase. This was found in all work packages where Cramton's problems were observed. Only two discourse chunks in work package 6 showed evidence of the *norming* phase in relation to Cramton's problems. Both discourse chunks agreed to a solution to the problem of receiving information after and not before.

The next sections looks at situations showing no growth in mutual understanding in relation to time.

5.2.5 Looking at no growth in mutual understanding in relation to time

This section looks to identify patterns amongst situations showing no growth in mutual understanding in relation to time.

Work package 1 is examined first.

7.2.5.1 Work package 1

Table 7.14 presents evidence of discourse chunks showing no growth in mutual understanding in relation to time.

Discourse chunk	Time
Partner 2 on work packages 2 and 6 (18/12/01)	Long term

Table 7.14: No growth situations and time for work package 1

Work package 2 is examined next.

7.2.5.2 Work package 2

Table 7.15 presents evidence of discourse chunks showing no growth in mutual understanding in relation to time.

Discourse chunk	Time
Partner 9 (18/12/01)	Long term
Partner 2 on work packages 2 and 6 (18/12/01)	Long term
Presentation of a demo (14/3/02)	Long term
Presentation on what the project voice solution can provide (14/3/02)	Long term

Table 7.15: No growth situations and time for work package 2

Work package 3 is examined next.

7.2.5.3 Work package 3

Table 7.16 presents evidence of discourse chunks showing no growth in mutual understanding in relation to time.

Discourse chunk	Time
Review of work done for work packages 2/3/4 (6/6/02)	Long term
Requirements for the tool from a technical point of view (7/6/02)	Long term
Presentation by partner 4's translator (12/9/02)	Long term

Table 7.16: No growth situations and time for work package 3

Work package 4 is examined next.

7.2.5.4 Work package 4

Table 7.17 presents evidence of discourse chunks showing no growth in mutual understanding in relation to time.

Discourse chunk	Time
Review of work done for work packages 2/3/4 (6/6/02)	Long term

Table 7.17: No growth situations and time for work package 4

Work package 5 is examined next.

7.2.5.5 Work package 5

There was no evidence of situations showing no growth in mutual understanding.

Work package 6 is examined next.

7.2.5.6 Work package 6

Table 7.18 presents evidence of discourse chunks showing no growth in mutual understanding in relation to time.

Discourse chunk	Time
Review of work package 6, dissemination activities (14/3/02)	Long term
Work package 6: Dissemination, standardisation and exploitation (6/6/02)	Long term
Work package 6 (13/9/02)	Long term

Table 7.18: No growth situations and time for work package 6

Work package 7 is examined next.

7.2.5.7 Work package 7

Table 7.19 presents evidence of discourse chunks showing no growth in mutual understanding in relation to time.

Discourse chunk	Time
Reporting (18/12/01)	Long term
Discussion (17/12/01)	Long term
Date of next meeting (7/6/02)	Medium term

Table 7.19: No growth situations and time for work package 7

The next section provides a summary of all the patterns which have been observed when looking at no growth in mutual understanding in relation to time.

7.2.5.8 Summary

In all work packages and all themes, apart from one theme in work package 7, the themes which had situations showing no growth in mutual understanding were from long term themes. The one exception which was found was looking at medium term themes. This analysis suggests that situations showing no growth in mutual understanding are likely to be more frequently in long term themes than any other themes.

The next section concludes this chapter.

7.3 Conclusion

This chapter has presented insights and patterns. There appears to be a relationship between no growth in mutual understanding, working in a multidisciplinary team and Cramton's problem, difficulty in communicating the salience of information. This was suggested by the results presented in chapters 5 and 6.

The next chapter presents guidelines, which have been proposed to promote mutual understanding in multidisciplinary teamwork, based on the empirical data collected and the insights reported in this chapter.

Chapter 8

Guidelines to promote mutual understanding in team interactions

Chapter 8: Guidelines

38 guidelines are proposed to promote mutual understanding in multidisciplinary teamwork. To derive those guidelines the states and sub-states characterised in chapter 3 and applied to real-life data in chapters 5 and 6 are used. Guidelines that are proposed do not focus on the details of working in a European research funded project team. This is to ensure that the guidelines can be applied to wider teamwork situations.

Guidelines are aimed at team members and not just the manager or leader. Aiming the guidelines at team members is to show how team members can individually contribute towards achieving mutual understanding in multidisciplinary teamwork. As the observed team included team members with a visual disability some guidelines suggest how to improve interactions when your has team members with a visual disability. When applying the guidelines, if your team does not include members with a visual disability those guidelines can be ignored. However, some of the guidelines also include ideas that may be of benefit to teams that do not have members with a visual disability. For this reason guidelines aimed at visually impaired people should not be ignored straight away, their description should be examined to see if what has been included is still relevant.

Guidelines are divided into face-to-face interactions and e-mail interactions and structured using the four categories or aspects by which team members update their mutual understanding (Mulder, 2000).

The next section summarises the method used by the researcher to propose guidelines to promote mutual understanding during face-to-face interactions.

8.1 Method for proposing guidelines to promote mutual understanding during face-to-face interactions

This summary details the method that was used to propose guidelines to promote mutual understanding during face-to-face interactions, based on empirical data collected from the case study reported in the thesis. It is important to note that the guidelines which have been proposed only include points that may be generalisable to most team working situations. Any reference that is made in the transcripts to the European research project team is not used to propose the guidelines. This is because guidelines have not been proposed to be used for only European research project teams.

Step 1: Refer to the annotated transcripts

- For each annotated transcript, displaying evidence of the characterised states and sub-states, complete the following seven sub-steps:

  Step 1.1: Identify all situations which promote growth in mutual understanding

  - Identify ALL situations which show evidence of growth in mutual understanding states.

  Step 1.2: Refine the list of situations removing specific situations concerning the European research project team

  - Remove ALL situations relevant to working in a European research project team.

Step 1.3: Group situations together

- Make a table of situations which you have empirical evidence for showing growth in mutual understanding states. The table should include the meeting date, discourse chunk and an identifier to chunk(s) of data from the discourse chunk(s).

Step 1.4: Identify all situations which promote no growth in mutual understanding

- Identify ALL situations which show evidence of no growth in mutual understanding states. This step is important to establish where action is necessary to reduce this situation from reoccurring. To add to the table in sub-step 1.3, situations identified that do not promote growth in mutual understanding.

Step 1.5: Refine the list of situations to not include European research project specific situations

- Remove ALL situations relevant to working in a European research project team.

Step 1.6: Identify potential evidence of Cramton's problems

- Identify ALL situations which show potential evidence of Cramton's problems.

Step 1.7: Identify potential solutions to evidence of Cramton's problems

- Propose solution(s) to reduce Cramton's problems from reoccurring. Those solutions can be based on evidence of action which may have been taken in the case study to problems identified, or actions proposed by the researcher to prevent Cramton's problems from occurring in the first place.

Step 2: Determine the guideline type

- Look at the table produced in sub-step 1.3, and for each situation identify its goal(s) to determine the guideline type. The guideline type is high level and low level detail is included in the description.

Step 3: Number the guideline

- Give each guideline type a unique identifier to allow each guideline to be uniquely referred too.

Step 4: Guideline Description

- Produce the description for each guideline type, refer to the table produced in sub-step 1.3.

Step 4.1: Include interesting interactions in the guideline description

- You can also include in your description any interesting interactions you have observed from discourse chunks directly related to the case study. Although steps 1.2 and 1.5 encourage you to remove any project specific situations, sub-step 4.1 encourages you to include in your guideline anything of interest which can be generalised and not just linked to the case study.

Step 4.2: Reducing Cramton's problems in the guideline description

- Include in the guideline any action you have seen or proposed yourself to reduce Cramton's problems from reoccurring.

Step 4.3: Structuring the guideline description

- Each point should be atomic where possible to ensure that the description can be clearly read.

Step 5: Identify source(s)

- Each guideline should include its source(s) by displaying the relevant chunk(s) from the discourse chunk which provides evidence for proposing that guideline or what has been included in the description

Step 5.1: Use examples

- Examples can be used to show that what has been proposed in the guideline has already been adhered to in the data. The example can provide evidence that what has been proposed is evidence of growth in mutual understanding in the ensuing dialogue. Using this evidence guidelines have been proposed to enable mutual understanding to evolve.

Step 6: Structuring the guidelines

- To structure the guidelines Mulder's (2000) categories or aspects are used.

Task/domain	Social interaction	Process	Technology
Project description	Personal traits	Planning next meeting	Technology use
Goals	Role in project/team	Structure current meeting	Communication tool breakdown
Design principles	Expectations of project/team	Other	Other
Material use	Background		
Steps	Other		
Context			
Other			

Table 8.1: Mulder's categories or aspects

The next section looks at the method the researcher used to propose guidelines to promote mutual understanding after face-to-face interactions using e-mail.

8.2. Method for proposing guidelines to promote mutual understanding after face-to-face interactions using e-mail

This summary details the method that was used to propose guidelines to promote mutual understanding after face-to-face interactions, using e-mail, based on empirical data collected from the case study reported in the thesis. It is important to note that the guidelines which have been proposed only include points that may be generalisable to most team working situations. Any reference that is made in the transcripts to the European research project team is not used to propose the guidelines. This is because guidelines have not been proposed for use in only European research project teams.

Step 1: Refer to actions decided at the face-to-face meeting

- Create a summary outlining ALL the actions which should take place as a result of each face-to-face meeting. The purpose of the summary is remind you of what actions were decided at the face-to-face meeting that need to be followed up.

Step 1.1: Create a visual representation

- Create a visual representation by identifying themes in the messages. For each theme use the message identifier in the visual representation to identify the message that is providing evidence for that theme. To also read the contents of each message to become familiar with what it includes.

Step 1.2: Identify all situations which promote growth in mutual understanding

- Identify ALL situations which show evidence of growth in mutual understanding states. Growth in mutual understanding states show if what has been discussed in the face-to-face meetings has been followed up by e-mail. It is important to note that there can also be growth in mutual understanding when team members are sent messages based on items not discussed during the face-to-face meeting.

Step 1.3: Refine the list of situations removing specific situations concerning the European research project team

- Remove ALL situations relevant to working in a European research project team.

Step 1.4: Group situations together

- Make a table of situations which you have empirical evidence for showing growth in mutual understanding states. The table should include the e-mail message number, who is sending the message, subject heading and the date of the message.

Step 1.5: Identify all situations which promote no growth in mutual understanding

- Identify ALL situations which show evidence of no growth in mutual understanding. That is actions from step 1 decided face-to-face which are not followed up by e-mail. Use this list to cross check with the contents of the e-mail messages if what was proposed during the face-to-face has been actioned. Any actions that are not followed up by e-mail displays evidence of no growth in mutual understanding.

Step 1.6: Refine the list of situations to not include European research project specific situations

- Remove ALL situations which are just relevant to working in a European research project team.

Step 1.7: Identify potential evidence of Cramton's problems

- Identify ALL situations which show potential evidence of Cramton's problems.

Step 1.8: Identify potential solutions to evidence of Cramton's problems

- Propose solution(s) to reduce Cramton's problems from reoccurring. Those solutions can be based on evidence of action which may have been taken in the case study to problems identified, or actions you propose yourself to prevent Cramton's problems from occurring in the first place.

Step 2: Determine the guideline type

- Look at the table produced in sub-step 1.4 and for each situation identify its goal(s) to determine the guideline type. The guideline type is high level and low level detail is included in the description.

Step 3: Number the guideline

- Give each guideline type a unique identifier to allow each guideline to be uniquely referred too.

Step 4: Guideline Description

- Produce the description for each guideline type, refer to the table produced in sub-step 1.4.

Step 4.1: Examine the message contents

- Close attention needs to be paid to each message referring to the contents and the context in which that message had been written.

Step 4.2: Include interesting interactions in the guideline description

- You can also include in your description any interesting interactions you have observed from textual chunks directly related to the case study. Although sub-steps 1.3 and 1.6 encourage you to remove any project specific situations, sub-step 4.2 encourages you to include in your guideline anything of interest which can be generalised and not just linked to the case study.

Step 4.3: Reduce Cramton's problems in the guideline description

- Include in the guidelines any action you have seen or proposed yourself to reduce Cramton's problems from reoccurring.

Step 4.4: Structure the guidelines

- Each point should be atomic where possible to ensure that the description can be clearly read.

Step 5: Identify source(s)

- Each guideline should include its source(s). It should also list the message number, who the message was sent by, when the message was sent and what textual chunk that message belonged too.

Step 5.1: Use examples

- Examples can be used to show that what has been proposed in the guidelines has already been adhered to in the data. For example, telling people if you will not be there for a meeting, or circulating an agenda in advance. Therefore, the evidence that these are good things to do shows evidence that this is a good thing, is evidence of increased mutual beliefs and hence growth in mutual understanding in the ensuing textual chunks. Using this evidence guidelines have been proposed to enable mutual understanding to evolve.

Step 5.2: Refer to face-to-face interactions

- Sources can also include items discussed face-to-face by selecting the relevant chunk(s) from the discourse chunk, providing supporting material to what was included in the guidelines description(s).

Step 6: Structuring the guidelines

- To use Mulder's (2000) categories or aspects, presented in table 6.9 to structure the guidelines.

The next section examines how the guidelines were proposed.

8.3 Proposing guidelines

The proposed guidelines are characterised to not just reflect the European research project team, which was used to illustrate this case study, but to promote mutual understanding when working as part of a more general team. For this reason, the nature of the guidelines is general. The insights reported in chapters 5 and 6 do show that there were a number of interactions focussing on activities which concern working in a European research project team. Therefore, any activities, which focus on working in a

European research project team, are not translated into proposed guidelines. This is because the proposed guidelines are intended for general teamwork activities and not just a European research project team.

To determine the guideline type (the high level goal that is associated with each guideline) discourse chunks and textual chunks are used.

Each guideline was proposed examining the application of states and sub-states to transcripts from the formal face-to-face meetings and the e-mail messages. The states and sub-states in chapter 3 were characterised to show where there could be growth and no growth in mutual understanding. Extracting relevant dialogue from the discourse chunks and examining the contents of e-mail messages from the textual chunks showed situations which had growth and no growth in mutual understanding. The application of states and sub-states to the two sources of data produced descriptions for the guidelines.

Therefore textual chunks and contents of the e-mail message from the chunks provided sources of evidence. The researcher was also looking for evidence of growth in mutual understanding in the discourse chunks. For example, if someone circulates material in advance, the evidence that this is a good thing, according to the grounding evidences which have been identified and the characterised states and sub-states that have been applied to the grounding evidences, display evidence of increased mutual beliefs and common ground between the communicating parties, hence growth in mutual understanding according to the re-definition of mutual understanding proposed in chapter 3. The researcher claims that the guidelines will also encourage growth in mutual understanding if the guideline is put into practice. Some guidelines were also proposed when the researcher identified situations of *'no growth in mutual understanding'*. In this situation the researcher proposed suggestions on how this situation could be reduced, to lower the number of situations in future which have no growth in mutual understanding.

Also included in the descriptions were suggestions on what action could be taken in certain situations which were observed but the data could not be used to develop the description as evidence was not found in the case study.

Lastly, potential evidence of any of the five types of problems experienced by dispersed teams (Cramton, 1997; 2001; 2002) which were found in the empirical data was acknowledged when proposing the guidelines. The researcher also included proposals on how those problems in future could be reduced or lowered.

Appendix O shows in detail for each guideline that has been proposed the sources of data which was used to not only proposed the guideline, but to also produce the description for each guideline. Figure 6.1 presents the template the researcher used to produce each guideline.

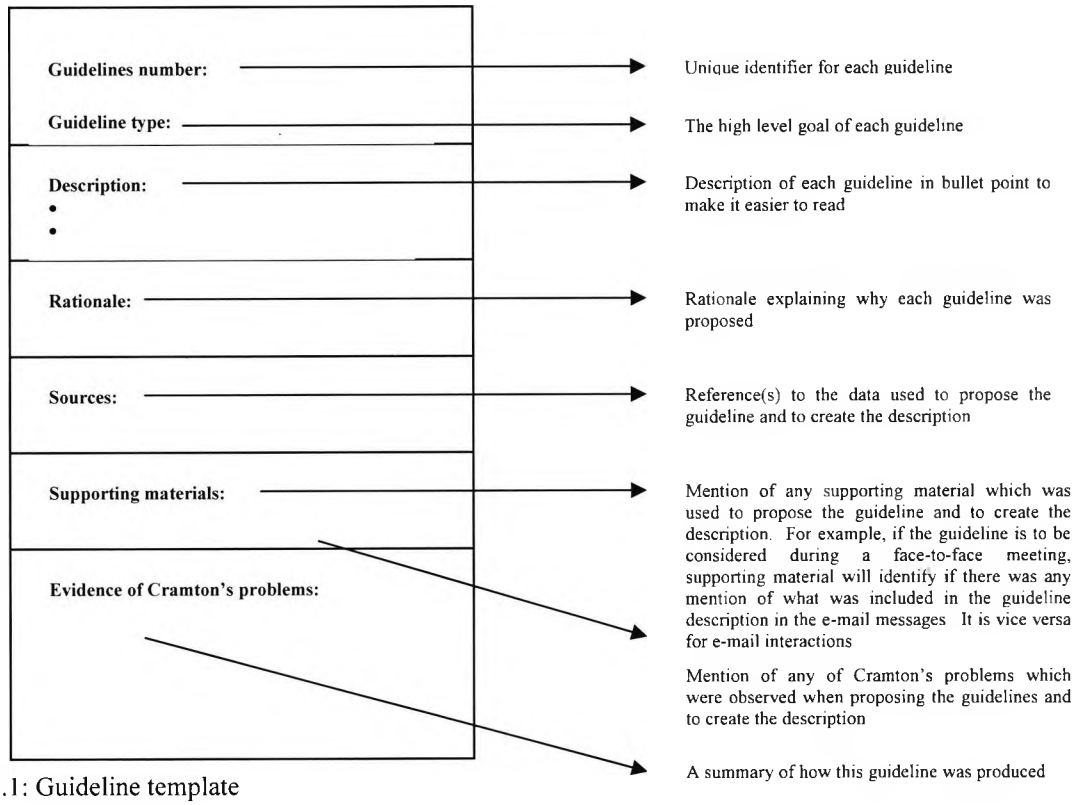


Figure 8.1: Guideline template

An independent rater not associated with this investigation was asked to classify the 38 proposed guidelines into Mulder's (2002) four categories or aspects, to assess how well two independent persons could allocate the guidelines to the same categories or aspects. The rater was provided with the guideline number, guideline type, description, rationale and Mulder's (2000) coding. Overall, there was 87% agreement (33/38) with the researcher's classification. Where there was a difference in the classification, the categories or aspects were re-examined until agreement was reached.

Guidelines for e-mail interactions are examined next.

8.3.1 Guidelines for e-mail interactions

Twenty-one guidelines are proposed to promote mutual understanding for e-mail interactions. Those guidelines suggest what types of messages should be sent to the project mailing list. Guidelines were proposed by examining the data collected from the e-mail messages sent using the mailing list address in the case study. As chapter 4 explained, e-mail messages were organised into textual chunks and the characterised states from chapter 3 were applied to the textual chunks to monitor the evolution of mutual understanding in e-mail messages. Close attention was also paid to the contents of each message. Therefore, guidelines were proposed by identifying both similarities and differences between states, paying attention to how state 7: no growth in mutual understanding when actions discussed face-to-face but not followed up by e-mail could be reduced. In this state common ground and mutual beliefs did not get larger, but remained the same. When proposing the guidelines it is important to try and promote mutual understanding in teamwork, and to reduce the number of situations which show no growth in mutual understanding. For this reason it is important to find a number of guidelines which can promote

mutual understanding and to characterise the situations which lead to growth in mutual understanding in teamwork.

Three of the 21 guidelines are to promote mutual understanding before face-to-face interactions and 18 are to be considered after a face-to-face interaction has taken place. The structure of this chapter is as follows. First the three guidelines to be considered before face-to-face interactions are examined. Then the guidelines to be considered during face-to-face interactions. This is followed by guidelines to be considered after face-to-face interactions. For each guideline the first is explained in detail for before, during and after. Thereafter only guidelines which the researcher finds particularly interesting are included in this chapter. The complete set of proposed guidelines with its supporting data is included in appendix O.

Guidelines B1-B3 summarised in table 8.2 are presented using the *process* category or aspect by Mulder (2000). This category or aspect involves planning of a next meeting and structuring the current meeting. For the guidelines, the category or aspect is not referred to as process, but as planning and structuring activities, as the term planning and structuring suggests a more familiar concept.

Guideline Number	**Guideline type**
B1	Circulating a draft agenda
B2	Back up plans for not being able to participate during the meeting
B3	Sending documentation(s) before a meeting, to be referred to during the meeting

Table 8.2: Three proposed guidelines in the planning and structuring category or aspect

Guideline B1 is examined next.

8.3.1.1 Guideline B1: Circulating a draft agenda

Guideline number: B1

Guideline type: Circulating a draft agenda

Description:

- Before any meeting takes place, an agenda should be proposed and made available to the team.
- An agenda can help team members make preparations.
- If the team has a leader or manger, they can be responsible for this.
  If not, it can be any of the team members.
- Everyone in the team should be given an opportunity to update the proposed agenda, and comments should be sought from the team.

The main rationale for producing guideline *B1* is because of the perceived benefits that can be brought to face-to-face interactions, if there is an agenda circulated before an interaction takes place. A face-to-face interaction in this context refers to a meeting. By having an agenda proposed in advance, team members can become aware of what will be discussed during that meeting, and gather expectations of what to expect during a meeting as well. It also allows those that are contributing to make preparations. To ensure that the agenda meets the needs of everyone attending the meeting, it should be circulated in advance before the meeting and comments and opinions from everyone should be sought.

Table 8.3 shows how this guideline was proposed, using sources of empirical data collected for this investigation.

Guideline number: B1

Guideline type: **Circulating a draft agenda**

Description:

- Before any meeting takes place, an agenda should be proposed and made available to the team.
- An agenda can help team members make preparations.
- If the team has a leader or manger, they can be responsible for this.
  If not, it can be any of the team members.
- Everyone in the team should be given an opportunity to update the proposed agenda, and comments should be sought from the team.

Rationale:

One of the main benefits of having an agenda proposed in advance is that all team members are aware of what will be discussed during the meeting. It also allows those that are making presentation to make preparations. An agenda also allow team members to have an expectation of what to expect during the meeting by referring to the points, which are included in the agenda.

Sources:

Source: Message *38* sent by *Jack* on Friday, March 01, 2002 3:29 PM (After 1st meeting). From textual chunk *Meeting in Paris* Appendix H

MESSAGE 38
From: Jack
To: Project team
Subject: Agenda for Paris (Draft)
Date: Friday, March 01, 2002 3:29 PM

Administrative co-ordinator sends the message

Draft agenda is circulated

Dear Colleagues,

This is the draft agenda for the meeting in Paris (14-15 march):

-- Wednesday 13 evening: Meeting for WP3 (only Partner 2, Partner 1, Partner 9, and Partner 4)

-- Thursday 14 morning: Review of results and objectives for WP6 and WP2
-- Thursday 14 afternoon: Review and discussion for WP1 (including presentation of the prototype of a voice e-learning portal)
-- Friday 15 morning: Plennary meeting (administrative issues, review of project...)

Please, send any comments to this very preliminary agenda.

Comments are requested

Best regards,
Jack

Source: Message *41* sent by *Jack* on Thursday, March 07, 2002 7:09 PM (After 1st meeting). From textual chunk *Meeting in Paris*. Appendix H

MESSAGE 41
From: Jack
To: Project team
Subject: Meeting in Paris
Date: Thursday, March 07, 2002 7:09 PM

Administrative co-ordinator sends the message

Dear Colleagues,

Attached to this message you will find version 1 of the Agenda for Paris.

Draft agenda is circulated

As u sual, please, let me know your thoughts about the agenda. Any active participation in the meeting (presentations, new issues...) is welcome.

Best regards,
Jack
(See attached file: Agenda Paris.doc)

Comments are requested

Source: Message *48* sent by *Jack* on Wednesday, May 29, 2002 5:39 PM (After 2nd meeting). From textual chunk *Agenda for Meeting*. Appendix J

MESSAGE 48
From: Jack
To: Project team
Subject: Agenda for Meeting in Madrid
Date: Wednesday, May 29, 2002 5:39 PM

Administrative co-ordinator sends the message

Dear colleagues,

Draft agenda is circulated and comments are requested

Please find attached the first version of the Agenda for the meeting in Madrid next week. Send your comments, suggestions, corrections....

Any proposal to participate in the meeting with presentations is welcome.

Best regards,
Jack
(See attached file: Agenda Madrid 2002.doc)

Source: Message *53* sent by *Jack* on Tuesday, June 04, 2002 2:07 PM (After 2nd meeting). From textual chunk *Agenda for Meeting*. Appendix J

MESSAGE 53
From: Jack
To: Project team
Subject: Some details Meeting in Madrid
Date: Tuesday, June 04, 2002 2:07 PM

Administrative co-ordinator sends the message

Dear Colleagues,

Draft agenda is circulated

please find attached the final version of the Agenda for the meeting in Madrid (the same as the previously sent).

(See attached file: Agenda Madrid 2002.doc)

Best regards,
Jack

Source: Message *44* sent by *Jack* on Friday, August 23, 2002 11:42 AM (After 3rd meeting). From textual chunk Draft Agenda for the Meeting. Appendix L

MESSAGE 44
From: Jack
To: Project team
Subject: Amendments
Date: Friday, August 23, 2002 11:42 AM

Administrative co-ordinator sends the message

Dear Colleagues,

Intention to circulate the agenda is shared with the team

I will send you a draft of the agenda for our meeting in Leuven (12th and 13rd September) next week.

Best regards,
Jack

Source: Message *46* sent by *Jack* on Thursday, August 29, 2002 10:23 AM. (After 3rd meeting). From textual chunk *Draft Agenda for the Meeting*. Appendix L

MESSAGE 46
From: Jack
To: Project team
Subject: Project: Draft Agenda for Leuven
Date: Thursday, August 29, 2002 10:23 AM

Administrative co-ordinator sends the message

Dear colleagues,

Draft agenda is circulated and comments are requested

Please find attached the draft of the Agenda for the meeting in Leuven. Send your comments, suggestions, corrections....

Any proposal to participate in the meeting with presentations is welcome.

Best regards,
Jack
(See attached file: Agenda Leuven 2002.doc)

Source: Message *54* sent by *Jack* on Tuesday, September 10, 2002 11:47 AM (After 3rd meeting). From textual chunk *Draft Agenda for the Meeting*. Appendix L

MESSAGE 54
From: Jack
To: Project team
Subject: Agenda for Leuven

Administrative co-ordinator sends the message

Date: Tuesday, September 10, 2002 11:47 AM

Dear Colleagues,

Message shared with the team following comments received

Hazel has told me that she wont be able to attend the meeting on friday. I propose the following agenda in order to change Workpackages 1 and 5 to thursday, so Helen can attend.

Best regards,
Jack
(See attached file: Agenda Leuven 2002 v2.doc)=

Draft agenda is circulated

Source: Message *18* sent by *Jack* on Monday, December 16, 2002 2:04 PM (After 4th meeting). From textual chunk *Agenda for the next Meeting*. Appendix N

MESSAGE 18
From: Jack
To: Project team
Subject: Meeting in Verona
Date: Monday, December 16, 2002 2:04 PM

Administrative co-ordinator sends the message

Dear colleagues,
Find also enclosed a preliminary version of the Agenda for the meeting in Verona. Please, send your comments and corrections to this agenda.

Best regards,
Jack
(See attached file: Agenda Verona 2003.doc)

Draft agenda is circulated and comments are requested

Source: Message *22* sent by *Jack* on Friday, January 10, 2003 1:05 PM (After 4th meeting) From textual chunk *Agenda for the next Meeting*. Appendix N

MESSAGE 22
From: Jack
To: Project team
Subject: Project. Verona Meeting. Agenda
Date: Friday, January 10, 2003 1:05 PM

Administrative co-ordinator sends the message

Draft agenda is circulated

Dear Colleagues,

please find attached an improved version, including your suggestions, of the Agenda for the meeting in Verona.

Best regards,
Jack
(See attached file: Agenda Verona 2003 v2.doc)

Supporting materials:

The December meeting was the first meeting that the researcher attended. Following attendance at this meeting, the researcher was included onto the project mailing list and as a result received messages that were sent following each of the face-to-face meetings

Evidence of Cramton's problems:

There was no evidence of Cramton's problems when proposing this guideline.

Summary:

Overall, observing what this team was currently doing derived the proposed guideline and the description. The researcher also included some of her own ideas.

Table 8.3: Linking sources of empirical data to guideline B1: Circulating a draft agenda

Overall, this guideline and description was proposed by examining contents of the nine messages sent to the team, and looking at the application of states to the textual chunks. The contents of messages *38* and *41* written by Jack shows that draft agenda's were circulated for the second meeting. In message *38* comments were sought and in message *41* active participation of team members was requested. The researcher assumes that there were no changes in the agenda as no revised version was sent to the team.

Message *44* sent by Jack informed the team of his intentions to produce a draft agenda for the third meeting by the following week. In message *46* sent by Jack, a draft agenda was circulated and comments were sought and participation in the meeting was requested. In message *54* sent by Jack, there was a proposed change in the agenda following a comment by one of the team members. It is assumed that team members did not mind this change as no further messages were sent in relation to the agenda for the third meeting.

Message *18* sent by Jack contained a preliminary version of the agenda for the fourth meeting. Jack asked team members for comments and to be notified of any corrections. In message *22* Jack sent an improved version of the agenda based on suggested he had received. It is assumed that the suggestions were sent directly to Jack and not to the mailing list as there were no messages received showing evidence of this. The researcher assumes that team members proposed no further changes in the agenda as revised versions were not sent to the team.

Therefore, the goal of circulating a draft agenda was covered in the nine e-mail messages sent to the mailing list. There was evidence of point 1 in the description *'Before any meeting takes place, an agenda should be proposed and made available to the team'*. There was no explicit evidence of the description in point 2 *'An agenda can help team members make preparations'*. However, the researcher believes that having active participation of team members during the meeting and team members knowing of this in advance as a result of the agenda being circulated, preparations can be made by the team members. For point 3 in the description it said *'If the team has a leader or manager, they can be responsible for this. If not, it can be any of the team members'*. In all nine messages Jack, the administrative co-ordinator was responsible for producing the agenda. As the proposed guidelines were not specific to European research projects, the researcher included the team leader or manager and did not limit this role to an administrative co-ordinator. Although there was no evidence of team members producing the agenda in this case study, the researcher in the description did mention that if there is no leader or manager in the team any team member can be responsible for producing a meeting agenda. Lastly, for the final point *'Everyone in the team should be given an opportunity to update the proposed agenda, and comments should be sought from the team'* shows that Jack did requests comments and participation from team members when circulating draft agendas to the team. This is important to team members so that the feel involved in the process of establishing an agenda for the meeting.

There was no potential evidence of any of Cramton's problems when looking at circulating a draft agenda so there was no need to include anything additional in the proposed guidelines than that already mentioned.

When characterising this guideline there was evidence of states *4* and *5* in the e-mail messages received. A message sent to the group, but not following discussions which took place when the team was together at the face-to-face meeting and no discussion thread emerging from the original message.

The next section looks at guideline B2.

8.3.1.2 Guideline B2: Back up plans for not being able to participate during the meeting

Guideline number: B2

Guideline type: Back up plans for not being able to participate during the meeting

Description:

- If you know in advance that you cannot participate during a meeting, backup plans should be made.

For presentations you are encouraged to circulate slides, which you would have used during your presentation, so that the team can still, receive some information.

- For non-attendance at a meeting you should include what you would like discussed during the meeting in your absence.

The main rationale for producing guideline *B2* is to overcome the problem of team members not being informed by other members of the team what they have been working on. Two simple backup plans are mentioned in this guideline that can be used when you know that you will not be able to participate during a meeting.

The researcher finds this guideline interesting, as although it includes simple measures there was no evidence to show that all team members followed what was proposed when they could not attend face-to-face meetings. For this reason, the sources which were used to produce this guideline and description is included as part of this chapter. Table 8.4 shows how this guideline was proposed, using sources of empirical data collected for this investigation.

Guideline number: B2

Guideline type: Back up plans for not being able to participate during the meeting

Description:

- If you know in advance that you cannot participate during a meeting, backup plans should be made.
- For presentations you are encouraged to circulate slides, which you would have used during your presentation, so that the team can still, receive some information.
- For non-attendance at a meeting you should include what you would like discussed during the meeting in your absence.

Rationale:

There are a number of reasons why partners or team members may not attend meetings. Examples include financial, clashes with the dates and unexpected events. For this reason, if you know in advance that you will not attend the meeting, backup plans need to be made. Also, if there are any constraints that you know in advance which may affect your participation during the meeting, this also needs to be informed before hand, in order to see if any changes can be made.

Sources:

Source: Message *44* sent by *Hazel* on Friday, May 24, 2002 7:08 PM (After 2nd meeting) Fom textual chunk *Review*. Appendix J

MESSAGE 44
From: Hazel
To: Project team
Subject: Re: PROJECT Review
Date: Friday, May 24, 2002 7:08 PM

Dear Jack,

...

Cheers,
Hazel

p.s. I'm sorry I won't be able to join you in Madrid, but I will circulate material before hand.

Source: Message *54* sent by *Hazel* on Wednesday, June 05, 2002 10:25 AM (After 2nd meeting). From textual chunk *Review*.

MESSAGE 54
From: Hazel
To: Project team
Subject: PROJECT: information for discussions of WP1 and WP5
Date: Wednesday, June 05, 2002 10:25 AM

Dear Friends,

As I will not be able to join you in Madrid, I am circulating two documents concerning the work in WP1 and WP5. Mary will take you through discussion of these documents.

The plan for Deliverable 1.1 covers all the work we have been doing in WP1, so this will be quite a substantial document. I have included chapters for specifications for both the elearning portal and the elearning authoring tool, although for the latter we have D1.2, but this is only an internal document.

One very important matter to consider is that I am still waiting for questionnaires on unmet learning needs from most of the user group partners. Please remember that we agreed that each partner would produce 15 questionnaires for this exercise. Thomas has kindly sent me a reasonable number, but ALL other partners owe me their questionnaires! Please try and get the filled out in some detail as well. I noticed from the initial questionnaires I received for the last deadline that quite a few gave very minimal answers, please ask people to elaborate. The final version of the deliverable is due in Month 12, so I ask people to provide the questionnaires by the middle of July at the latest, to allow time for analysis and writing. Hope the meeting in Madrid is productive. Cheers to all, Hazel
Source: Message *54* sent by *Jack* on Tuesday, September 10, 2002 11:47 AM (After 3rd meeting). From textual chunk *Draft agenda for the Meeting.* Appendix L MESSAGE 54 From: Jack To: Project team Subject: Agenda for Leuven Date: Tuesday, September 10, 2002 11:47 AM Dear Colleagues, Hazel has told me that she wont be able to attend the meeting on friday. I propose the following agenda in order to change Workpackages 1 and 5 to thursday, so Helen can attend. Best regards, Jack (See attached file: Agenda Leuven 2002 v2.doc)=
Source: Message *55* sent by *Jack* on Tuesday, September 10, 2002 5:21 PM (After 3rd meeting) From textual chunk *Leuven Meeting.* Appendix L MESSAGE 55 From: Jack To: Project Team Subject: Leuven Meeting (from partner 6) Date: Tuesday, September 10, 2002 5:21 PM Paul Brass has asked me to send you this message: Dear colleagues, Due to financial constraints, the german delegation will not be able to attend the above meeting. We tried hard to make things work, but unfortunately didn't succeed. We are very sorry not to be present at this important stage of the project. Looking forward to seeing you next time, whereever it may be. Desmond, Kevin and Paul
Supporting materials: • **Source**: 7/6/02 Discourse chunk: Presentation on work package 1 (3rd meeting) Appendix K Mary: Today we are going to produce a presentation on work package 1, and because Hazel could not here today, so, [pause] I will try to take her place in a way, and chair the two sessions. … • **Source**: 12/9/02 Discourse chunk: Welcome (4th meeting) Appendix M Jack: As I think you read yesterday, our German partners, did not make it to come here, Hazel: uh-huh ***(Sub-state 1.1)*** Jack: so sadly we have no representation of the Germans [pause] and um, so, I hope you all, receive • **Source**: 18/12/01 transcript, Short presentation by each of the partners on what work they have done in the last three months, Expected presentation from Partner 4). 1st meeting) Appendix G Jack: The Italian partners have already left. He said he will email his presentation about his work.
Evidence of Cramton's problems: There was no evidence of Cramton's problems when proposing this guideline.
Summary: Overall, observing what this team was currently doing derived the proposed guideline and the description. The researcher also included some of her own ideas.

Table 8.4: Linking sources of empirical data to guideline B2: Back up plans for not being able to participate during a meeting

Overall, this guideline and description was proposed by examining the contents of the four messages sent to the team, and looking at the application of states to the textual chunks. Also looking at what the team did not do and the researcher proposing her own ideas helped to develop this guideline and description. The contents of messages *44* and *54* sent by Hazel show that back up plans were made for non-attendance at a meeting. Also, message *54* shows that changes were made as a result of not being able to attend a

meeting. Message *55* sent by Jack shows that there was non-attendance to a meeting, but with no back up plans made. Supporting material from three discourse chunks was also used. This is described next.

Discourse chunk *Presentation on work package 1* shows evidence of a team member from the same partner organisation as someone who could not attend the meeting chairing two sessions. Work had been prepared in advance and circulated to the team before the meeting took place to share what the team member who could not attend should discuss at this meeting. In messages *44* and *55* sent by Hazel, she informed the team of her intention to circulate information to the team and evidence of circulating intended information to the team. In discourse chunk *Welcome* the administrative co-ordinator informed the team that there was no representation of the German partners. Message *55* sent by Jack informed the team that the German partners would not be attending that meeting. Lastly, in discourse chunk *Short presentation by each of the partners on what work they have done in the last three months, expected presentation from partner 4* shows that the team was informed by the administrative co-ordinator that as that team member had already left the meeting, information on what they had done would be shared by e-mail.

Therefore the goal of having back up plans for not being able to participate during the meeting was covered in three of the four e-mail messages sent to the mailing list. This shows that there was evidence of point 1 in the description *'If you know in advance that you cannot participate during a meeting, back up plans should be made'*. Point 2 in the description *'For presentations you are encouraged to circulate slides, which you would have used during your presentation, so that the team can still, receive some information'* was proposed by the researcher after seeing that in message *55* sent by Jack and discourse chunk *Short presentation by each of the partners on what work they have done in the last three months, expected presentation from partner 4*, that no plans had been made if the meeting could not be attended. Point 3 in the description *'For non-attendance at a meeting you should include what you would like discussed during the meeting in your absence'*, was proposed by the researcher looking at message 55 sent by Jack and the same discourse chunk as point 2, and action which could be taken for non-attendance at a meeting.

There was no potential evidence of any of Cramton's problems when looking at having back up plans for not being able to participate during the meeting so there was no need to include anything additional in the proposed guidelines than that already mentioned.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and a discussion thread emerging from the original message. States *4* and *5*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and a discussion thread emerging from the original message. States *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting evidence from state *7*, no growth in mutual understanding as actions discussed face-to-face are not followed up by e-mail, resulting in no additional common ground or mutual belief being established in discourse chunks from the face-to-face meetings.

The next section looks at guideline B3.

8.3.1.3 Guideline B3: Sending documentation(s) before a meeting, to be referred to during the meeting

Guideline number: B3

Guideline type: Sending documentation(s) before a meeting, to be referred to during the meeting

Description:

- Documentation(s), which you will refer to during the meeting, should be sent in advance.
- Team members should be given enough time to read this information before attending the meeting.
- For the meeting, you should take extra copies in case team members fail to bring their copies with them.

The main rationale for producing guideline *B3* is to show that to successfully refer to a document during a face-to-face meeting, it needs to be circulated in advance so that team members can follow what you are saying. Team members also need to be given a reasonable amount of time to read it. If you would like to have a discussion on a particular topic, this request should also be circulated in advance. If you are going to refer to the document during the meeting, it can be useful to take additional copies as well.

Overall, this guideline and description was proposed by examining contents of the two messages sent to the team, and looking at the application of states to the textual chunks. Messages *42* and *43* sent by Mary were identical showing that a report was circulated before a meeting and a request was made for team members to have a look at this report before the meeting. Examining supporting material from discourse chunks also helped to produce this guideline.

Supporting material was found from five discourse chunks. *Presentation of a demo* shows that some team members commented that the document which had been received had only been sent a few days ago. Therefore, a team member made a proposal to look at that document the following day, after giving team members an opportunity to read it. *Work package 1, overview of circulated report* shows evidence of Mary informing the team that she is going to present a basic overview of the report which was distributed at the beginning of the week. Mary also mentioned that she was not sure if anyone had had a chance to look at it. However, everyone should have received the report. Related to this are two discourse chunks. *Presentation on work package 1 – results for evaluation study* shows Mary saying to the team that she does not know if any one has had a chance to look at the report yet. Also, *Presentation on work package 1- discussing plans for deliverables in work package 1* shows Mary checking that everyone received the e-mail with the information that Hazel would like discussed. However, discourse chunk *Discussion of review questions from review report* shows that everyone did not have copies of the report which was being discussed, therefore extra copies of that report would be made for those requiring it.

Therefore the goal of sending documentation(s) before a meeting, to be referred to during the meeting was covered in the two e-mail messages sent to the mailing list. There was evidence of point 1 in the description *'Documentation(s), which you will refer to during the meeting, should be sent in advance'* from messages *42* and *43* sent by Mary. There was also supporting material from the following discourse chunks. *Presentation of a demo*, *Work package 1, Overview of circulated report*, *Presentation on work*

package 1 – results for evaluation study and *Presentation on work package 1, discussing plans for deliverables in work package 1.* These discourse chunks all had material being circulated before the meeting. Evidence of point 2 in the description *'Team members should be given enough time to read this information before attending the meeting'* was found in discourse chunk *Presentation of a demo.* In this discourse chunk comments were made that this document had been circulated to the team only recently. Point 3 in the description *'For the meeting, you should take extra copies in case team members fail to bring their copies with them'* was proposed looking at discourse chunk *Discussion of review questions from review report.* In this discourse chunk extra copies of a document were made after finding out that everyone had not brought their copies with them. This document had been circulated in advance to team members by e-mail. In discourse chunk *Presentation on work package 1- discussing plans for deliverables in work package 1*, Jack brought extra copies to the meeting from the beginning and did not wait to see if any team members required it.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in discourse chunk *Presentation of a demo* in sending documentation(s) before a meeting, to be referred to during the meeting. The researcher observed this when Charles informed the team that he had sent a draft version of his document to the technical partners but had received no comments on it. Hence a delay in sending the document to the team. To reduce this problem in future the researcher included point 2 *'Team members should be given enough time to read this information before attending the meeting'.*

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and a discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement, state *2*, disagreement, and state *3*, neutral position in discourse chunks from the face-to-face meetings.

Guidelines for face-to-face interactions are examined next.

8.3.2 Guidelines for face-to-face interactions

Seventeen guidelines are proposed to promote mutual understanding during face-to-face interactions. Those guidelines were proposed by looking at the application of states and sub-states to monitor the evolution of mutual understanding. As this set of guidelines look at face-to-face interactions, close attention is paid to the discussions which took place at the face-to-face meetings. The researcher also paid close attention to reduce state 5, no perceived growth in mutual understanding. In this state common ground and mutual beliefs do not become larger, but remained the same. Supporting material from relevant textual chunks was also used in developing the guidelines.

Guidelines D1-D17 summarised in table 8.5 are presented using three categories or aspects by Mulder (2000). Twelve guidelines belong to social interaction, personal and cultural utterances, referred to here as expectations of team members. Three guidelines belong to planning and structuring activities, not process. One guideline belongs to technology, that is utterances related to technology use or media choice.

Guideline Number	Guideline type
Expectations of team members	
D1	Reference to terms, which are used
D2	Communicating with the team
D3	Establishing a system to identify who would like to speak next
D4	Discussing document formats
D5	Developing presentations and giving demonstrations
D6	Sharing information by using examples/showing demonstrations
D7	Making explicit requests
D8	Informing on changes
D9	Making decisions
D10	Establishing regular reporting periods
D11	Summarising information
D12	Updating on progress
Planning and structuring activities	
D13	Consulting the agenda once everyone has arrived to the meeting
D14	Structuring the meeting
D15	Making presentation preparations
D16	Selecting a date for a next meeting
Using technology	
D17	Encouraging self testing

Table 8.5: Seventeen guidelines to promote mutual understanding during face-to-face interactions

Guidelines D1 – D17 are examined in turn.

8.3.2.1 Guideline D1: Reference to terms, which are used

Guideline number: D1

Guideline type: Reference to terms, which are used

Description:

- To identify what important terms mean to different team members, so that everyone is working towards the same concept.
- A project glossary may be useful.

The main rationale for producing guideline *D1* is that when working as part of a multidisciplinary team it is important to make sure that everyone knows what is meant by all terms that are used. It is also important that everyone works towards the same understanding of a term, and that differences in perspectives are identified. Therefore, a glossary is proposed. The glossary must be maintained and updated as new terms are introduced to be effective.

Table 8.6 shows how this guideline was proposed, using sources of empirical data collected for this investigation. This is because the researcher finds this guideline interesting.

Guideline number: D1

Guideline type: **Reference to terms, which are used**

Description:

To identify what important terms mean to different team members, so that everyone is working towards the same concept. A project glossary may be useful.

Rationale:
Important for all aspects of communication and collaboration, particularly when you are working in a multidisciplinary team.

Sources:

Source: 14/03/02 discourse chunk: *Work package 1 - overview of circulated report* (2nd meeting) Appendix I
Mary: the main recommendations were to have accessible templates,
[Translator for Michael asks Hazel what is a template]
Mary: but, we have to make sure that the templates are accessible, and that the developments and the templates are accessible as well. And also, to include
[Hazel explains to the translator by whispering to him, what is a template]
Mary: all the actions that are included. And in terms of the accessibility of the course component, which are produced using authoring tools. We recommend that
[Can still hear Hazel whispering to Michael's translator what a template is]
Mary: the tools, which encourage the creation of text, if we want to includes images in other media in the course, which an authoring tool can do
[Translation to Michael what a template is]

[Hazel draws a diagram to show what a template is]
Mary: Also it can incorporate course content and instructions
[Can hear other people whispering as well]
Mary: in the environment. Also, the tool can incorporate guidelines, guidance on producing effective e-learning components that are accessible to all user. And they can also enable the synchronisation of all the accessibility. And, yeah
Charles: What do you mean by the accessible templates?
Mary: Right, these are
[Can hear Hazel talking about templates in the background as well]
Mary: I do not know if it will be helpful, but I mentioned to some of the other people here, that I have a trial version of one of the e-learning [pause] authoring tools, which has got a template as well But, basically the templates are like forms for creating the tables
[Hazel nods her head] ***(Sub-state 1.1)***
Mary: which are like multichoice questions, or form filled questions, or different types of questions, and they are very much like visual, visual forms. And, you need to select the components from a combo box or different kinds of box, and as they are very much like on dragging or dropping or clicking on things with the mouse, that makes them inaccessible.
[Can hear whispering in the background]
Mary: I don't know how maybe, or how we can avoid this.
[Can still hear whispering in the background]
Mary: or how the design features can be improved, or the forms need to be simplified, or just presented in a different form, which

Source: 6/6/02 Discourse chunk: *Discussion of the tool* (3rd meeting) Appendix K

Kenneth: over and above what a screen reader already does, because, that page as it already stands, [pause] and correct me if I am wrong, it is potentially accessible by a screen reader like yours. So, this project has to do something new, something different. It has got to handle other material, and it has to handle it better. So, the reality is yes, we can certainly put, we can voicify, [pause] for a better word, this material. But, in the end we need to have something else, which in this moment, a screen reader is not going to handle well. And the question is what is that going to be. It has been suggested thoughout this, and it is not, entirely clear, because we get messed around a bit, with what we mean by an e-learning portal, because a portal would not normally contain any [pause] an e-learning portal would not normally contain courses itself, it would be a link to courses. But, if we say that we are going to have [pause] e-learning content on that, we actually have to decide, what is it, about that content, which is going to be [pause] which we are going to present in a way, which is going to be a significant improvement on what a screen reader would already do for us. That is the question. Now, if you are going to simply voicify a page, [pause] an e-learning page, you are still doing what a screen reader does. Now, if you are not going to do that, you are going to add content, you are going to make something different out of it, therefore you are building a different page, and we need to do that in the best way possible. So, the question, whatever way you look at this question, if it is going to simply be that we are going to voicify what we see on screen, then you are doing what a screen reader already does. And, there is nothing more than that, and we will have to re-design [Pause]
Jack: yes, yes, this is the same, [pause] I remember, that we were discussing in Paris, I think it was Ronnie, where is the innovation here And, at the end the answer was, that the innovation is the –learning ***(Sub-state 1.1)***
Kenneth: absolutely, therefore it has got to be innovative. ***(Sub-state 1.1)***
[Lucy raises her hand]

Source: 6/6/02 Discourse chunk : *Discussion of review questions from review report* (3rd meeting) Appendix K

Kenneth: Yes, maybe we need to [pause] we all have a common understanding of what is being asked of here, because you used the word integration here, where, this is talking about ***(Sub-state 1.1)***
Annie: interaction
Kenneth: interaction, and as I can see, it is to do with [pause] understanding how, yes, a voice recognition system has to recognise a voice, and interpret the words. But, what happens especially in terms of this project that we are looking at any semantic or recognition as well So, [pause] are we verging on the edges of natural language processing, [pause] we need to at least address that even if we are doing that or not. [Pause] um, and how does that, it is part of what we were talking about earlier on [pause] in terms of recognition, that some of this will [pause] the way that a speech interaction will work, will be different from a screen interaction. So, as we talked about this morning, with the radio buttons, there is some content alteration, which will be required. So, that is my translation of this, that it is some of the interaction, with voice in and voice out, and how the tool, how the plug in is going to help us with that interaction ***(Sub-state 1.1)***
Annie: but using voice xml?
Kenneth: based on voice xml, certainly, yes ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Kenneth: how does voice xml work with all this as well, but this is in part, because at the moment, we although, voice recognition is mentioned several times
Annie: yes ***(Sub-state 1.1)***

Supporting materials:

None.

Evidence of Cramton's potential problems:

There was no potential evidence of any of Cramton's five problems in the sources for this guideline.

Summary:

Overall, observing what this team was currently doing derived the proposed guideline and the description.

Table 8.6: Linking sources of empirical data to guideline D1: Reference to terms which are used

Overall, this guideline and description was proposed by examining the contents of four discourse chunks, and looking at the application of states and sub-states to the discourse chunks. Discourse chunk *Work package 1 – overview of circulated report* shows a situation where a team member's translator had to ask about the meaning of a term which was used. In *Discussion of the tool*, a team member brought to attention that they were getting messed around by a term's meaning. To deal with this situation the understanding of what that term meant to them was explained to the team. In *Discussion of review questions from review*, there is evidence that two different terms were used. There was also evidence of another team member bringing to attention that perhaps different partners have different understanding of terms. This had already been brought to attention in discourse chunk *Discussion of the tool*.

Therefore, the goal of *establishing reference to terms, which are used,* was covered in three discourse chunks. There was evidence of points 1 and 2 in the description *'To identify what important terms mean to different team members, so that everyone is working towards the same concept. A project glossary may be useful'.*

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in two discourse chunks. In *Work package 1- overview of circulated report*, the salience of information when Mary mentioned accessible templates and the translator and Charles asking what template and accessible template meant shows that the salience was higher for Mary than to the rest of the team, particularly the translator and Charles as they had to ask what those terms meant. There was also potential evidence in *Discussion of review questions from the review report* when Mary suggested that different partners had different understanding of the meaning of the term portal. This situation highlights that the term e-learning portal was more salient to some team members than others.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Difficulty in communicating the salience of information. Using a project glossary is included separately in guideline A4.

When characterising this guideline there was evidence of state *1*, agreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline D2.

8.3.2.2 Guideline D2: Communicating with the team

Guideline number: D2

Guideline type: Communicating with the team

Description:

- To make sure you are speaking
  Loudly,
  Not too fast and
  Clearly at all times
  As English may not be the first language for all team members.
- If you were told that you were speaking too fast, you should repeat everything you said before this request was made, so that everyone had access to the same information.
- Silence should also be encouraged when someone is talking, as background noise can be disturbing.
- Equipment, which is not in use, should also be turned off.
- If you have any language difficulties you should ask if someone can make a translation for you.
- When communicating you must not assume that what you can see is the same as what others can see.
- You should not just point at information but also explain what you are pointing to for the benefit of those who cannot see you using gestures.
- When acronyms are used for the first time, they should be explained in full (as a minimum giving its name and some background information), so that others in the team are not left guessing what the acronym may be representing.

The main rationale for producing guideline *D2* is to suggest good practice for team members to follow which can help to ensure that the team communicates together as effectively as possible. As listening to

people talk is not an easy activity, this guideline suggests some simple steps which can be taken by the speaker to make sure that they can be heard at all times. Those steps are particularly beneficial when English is not the team members first language. Differences in language can make it hard to contribute to discussions and to give comments and opinions. Therefore, if there is someone who speaks the same language as you in the team and is comfortable with their use of English, they should be asked if they can speak on your behalf. For the benefit of those who cannot see non-verbal cues it is important to describe what you are referring to and to give verbal cues where possible. This last point is particularly important if you have someone in your team that has a visual disability. Acronyms, which are used, should also be explained in full the first time it is used, as you cannot assume that everyone has the same knowledge as you, the speaker.

Overall, this guideline and description was proposed by introducing five themes, *speaking loudly and clearly*, *translating information*, *asking for silence*, *reducing background noise*, *explaining what you are showing* and *using acronyms*.

Theme *Speaking loudly and clearly* was proposed looking at the following 11 discourse chunks. *Discussion*, *Partner 3's short presentation on what they have been working on in the last 3-months*, *Review of work package 6, dissemination activities*, *Presentation of a demo*, *Overview of the evaluation sessions*, *E-learning portal*, *Review of work by work packages 2/3/4*, *Demonstration of the partner 7 portal*, *Discussion of review questions from review report*, *Presentation on work package 1* and *Demonstration of the prototype*. In 8/12 (67%) of situations, evidence was gathered for speaking loudly. In four of those situations information was repeated following a request to speak louder and in the other four situations, information was not repeated following a request to speak louder. In two situations information already said was repeated. One situation asked who was talking to say what they were talking about and someone checking their understanding against what had been said. In another situation, a speaker speaking louder to draw attention to what they are saying.

Theme *Translating information* was proposed looking at the following three discourse chunks. *Demonstration of the partner 7 portal*, *Discussion of the tool* and *Review of work package 1*. In all three discourse chunks another team member had spoken on behalf of someone else. In one situation it was made explicit that they were speaking on behalf of someone else for language reason. In another situation there was evidence of a team member speaking in German and another person making a translation into English, to share what was being said to the team.

Themes *Asking for silence* and *Reducing background noise* was proposed looking at the following two discourse chunks. *Discussion of the tool* and *Presentation on discussing plans for deliverables in work package 1*. In two situations a request to be quiet was made. There was also evidence of where equipment which was not being used being turned off.

Theme *Explaining what you are showing* was proposed looking at the following two discourse chunks. *Overview of the evaluation sessions* and *Dissemination*. In one situation a team member was directly referring to information on their presentation slide, however, this would have been missed by those that were blind and may have been missed by those that are visually impaired. In another two situations information that was being shown was directly referred too. However, what was interesting about this

situation is that what was being shown was also being explained for the benefit of those team members who could not see that information.

The final theme *Using acronyms* was proposed looking at the following two discourse chunks. *Dissemination* and *Dissemination activities*. In both discourse chunks a team member had to ask the speaker what the acronym being used was representing.

Therefore the goal of *effectively communicating with the team* was covered by various themes. There was evidence of point 1 in the description *'To make sure you are speaking loudly, not too fast and clearly at all times as English may not be the first language for all team members'*. This was covered in 11 discourse chunks and in eight situations a request was made to speak louder. In one situation a team member commented that since English was not their mother tongue it was important the speaker spoke clearly otherwise there were problems experienced with both understanding and translating what had been heard. Speaking clearly was included in this guideline to support effective communication. There was also evidence of point 2 in the description *'If you are told that you are speaking too fast, you should repeat everything you said before this request was made, so that everyone had access to the same information'* in four situations. There was evidence of points 3 and 4 in the description *'Silence should also be encouraged when someone is talking, as background noise can be disturbing. Equipment, which is not in use, should also be turned off'* in three situations. There was evidence of point 5 in the description *'If you have any language difficulties ask if someone can make a translation for you'* after finding evidence of this in two situations when another team member who was more fluent in speaking English spoke on behalf of another team member. There was evidence of points 6 and 7 in the description *'When communicating you must not assume that what you can see is the same as what others can see. You should not just point at information but also explain what you are pointing to for the benefit of those who cannot see you using gestures'* was found in three situations. In one situation there was no explanation of what was being referred to. In the other two situations there was evidence of explanations offered on what was being referred to. This point is particularly important when you have team members who may not see what you are showing. There was evidence of the final point in the description *'When acronyms are used for the first time, it should be explained in full (as a minimum giving its name and some background information), so that others in the team are not left guessing what the acronym may be representing'* as two situations were found where a request had to be made in order to have the acronyms which was being used explained. This point is particularly important when working as part of a multidisciplinary team.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in discourse chunk *Presentation on work package 1* for theme *Speaking loudly and clearly*. Here a request was made by Ronnie for the speaker to speak clearly as English was not their first language. In this situation the salience was far higher for Erin the speaker who thought that she was clearly presenting an overview of their work on this work package, than to other team members. In particular, Ronnie who felt it was important to bring this matter to the team's attention.

There was also potential evidence of Cramton's problem *Unevenly distributed information* in discourse chunk *Dissemination* for theme *Explaining what you are showing*. Here Jack showed a picture to the

team from the European conference for disability. However, those team members that were blind would not have seen this information that he was showing.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Unevenly distributed information.

When characterising this guideline there was evidence of state *1*, agreement, state *2*, disagreement and state *3*, neutral position in discourse chunks from the face-to-face meetings.

The next section looks at guideline D3.

8.3.2.3 Guideline D3: Establishing a system to identify who would like to speak next

Guideline number: D3

Guideline type: Establishing a system to identify who would like to speak next

Description:

- Introduce a system to inform the team that you would like to take the next turn to speak.
- This is important, as everyone may not see when you use gestures. For example, you are either blind and/or visually impaired.
- Clicking your fingers is one technique, which can be used.
- It is important that everyone knows what cues you are using, so that they can be acknowledged when they are used.

The main rationale for producing guideline *D3* is to encourage the team to think about how they can communicate effectively with someone in the team who has a visual disability. This is important, as they may not see, and hence not know when non-verbal cues are used. For example, someone raising their hand to draw attention that they would like the next turn to speak. This guideline proposes that a system is introduced that meets the needs of the team, and does not cause too many disruptions during the teams interactions. To effectively use this system the entire team should be informed, so that everyone is aware.

Overall, this guideline and description was proposed by looking at four themes, *Clicking fingers*, *Putting hand up*, *Knocking on the table* and *Acknowledging that someone wants to speak*. Eight discourse chunks were used. *Review of work package 6, dissemination activities*, *Presentation of a demo*, *Overview of the evaluation sessions*, *E-learning portal*, *E-learning and voice*, *Amendment*, *Project brochure* and *Date of next meeting.*

Theme *Clicking fingers* was proposed looking at the following seven discourse chunks. *Review of work package 6, dissemination activities, Presentation of a demo, Overview of the evaluation sessions, E-learning portal, E-learning and voice, Amendment and Date of next* meeting. Thirteen situations were found in five discourse chunks. In four situations someone clicked their fingers and started talking straight away. In another four situations, someone clicked their fingers, but as this was not acknowledged they did not start speaking. In three situations someone clicked their fingers and as there was no acknowledgement they started to speak. Lastly, in two situations someone clicked their fingers and waited for acknowledgement before speaking.

Theme *Putting hand up* was proposed looking at the following seven discourse chunks. *Review of work package 6, dissemination activities, Presentation of a demo, E-learning portal, E-learning and voice* and *Project brochure.* In three situations someone put their hand up and started speaking straight away. In two situations someone put their hand up and waited for an acknowledgement before speaking. Lastly, in one situation someone put their hand up, and informed everyone that they wanted to speak, before actually speaking.

Theme *Knocking on the table* was proposed looking at discourse chunk *E-learning portal.* Here someone knocked on the table to draw attention that they would like to speak.

Theme *Acknowledging someone wants to speak* was proposed looking at discourse chunk *E-learning portal.* Here someone had acknowledged that another person wanted to speak before the speaker actually said anything to the team.

Therefore, the goal of *establishing a system to identify who would like to speak next* was covered by four themes. The description in point 1 *'Introduce a system to inform the team that you would like to take the next turn to speak'* was included after seeing that there were different systems used. For example, clicking fingers, putting your hand up, knocking on the table and explicitly acknowledging that someone wants to speak. The description in point 2 *'This is important, as everyone may not see when you used gestures. For example, you have raised your hand, if you either are blind and/or visually impaired'* was included as there were six situations from five discourse chunks where hands were raised to draw attention that you would like to take the next turn to speak. What was interesting here was that most of those situations found evidence of the blind team members doing this. However, it is included in this guideline to allow everyone to benefit and not just blind or visually impaired team members. There was evidence of point 3 in the description *'Clicking your fingers is one technique, which can be used'* as the highest number of evidences was found using this method in five discourse chunks and in nine situations. The description in point 4 *'It is important that everyone knows what cues you are using, so that they can be acknowledged when used'* was included to formalise this process. Also, to reduce situations where no acknowledgements is received and the person does not speak, despite indicating that they would like to take the next turn to speak.

There was no potential evidence of any of Cramton's problems when looking at establishing a system to identify who would like to speak next so there was no need to include anything additional in the proposed guidelines than that already mentioned.

When characterising this guideline there was evidence of some team members clicking their fingers to draw attention that they would like to take the next turn to speak. Other team members said that they would like to speak or just started speaking. This was observed in discourse chunks from the face-to-face meetings.

The next section looks at guideline D4.

8.3.2.4 Guideline D4: Discussing document formats

Guideline number: D4

Guideline type: Discussing document formats

Description:

- The accessibility of document formats should not be assumed as team members can have different needs.
- To find out if anyone in the team has any preferences for document formats.
- You should also discuss how these needs can be met.
- For example, some sighted people, visually impaired people and blind people prefer to look at Word documents instead of PDF generated documents.

The main rationale for producing guideline *D4* is to show that you cannot assume that what is suitable for one person is suitable for everyone. This guideline has its attention focussed on document formats. As document sharing is common, it is important to ensure that documents are circulated in a form that is accessible to its reader. Once preferences have been identified it is important to make sure that they are actioned.

Overall, this guideline was description was proposed examining the contents of two discourse chunks and looking at the application of states and sub-states to the discourse chunks. The two discourse chunks were *FTP site* and *Project brochure*.

Therefore, the goal of *discussing document formats* was covered in four discourse chunks. The description in points 1, 2 and 3 *'The accessibility of document formats should not be assumed as team members can have different needs. To find out if anyone in the team has any preferences for document formats. You should also discuss how these needs can be met'* was included by the researcher after observing that some team members had different needs when viewing document formats. There was also evidence of point 4 in the description *'For example some sighted people, visually impaired people and blind people prefer to look at Word documents instead of PDF generated documents'* in the discourse chunks.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in two discourse chunks. In *Work package 1- overview of circulated report*, the salience was higher to Mary when she mentioned accessible templates. However, the translator and Charles had to ask what template and accessible template meant. This shows that the salience was higher for Mary than to the rest of the team and in particular to the translator and Charles as they asked what those terms meant. Also, in *Discussion of review questions from the review report* when Mary suggested that different partners had different understanding of the meaning of the term portal. This situation highlights that the term e-learning portal was more salient to some team members than others.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Difficulty in communicating the salience of information.

When characterising this guideline there was evidence of state *1*, agreement and state *2*, disagreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline D5.

8.3.2.5 Guideline D5: Developing presentations and giving demonstrations

Guideline number: D5

Guideline type: Developing presentations and giving demonstrations

Description:

- The structure of any presentation or demonstration that you give should be described, by giving an outline of what is going to be covered.
- At the beginning of any presentation or demonstration you should also make it clear whether you would like to be interrupted during the middle or to wait until the end for any questions to be asked.
- When you are either presenting and/or demonstrating to set the scene you should name the sources that you have consulted.
- Make it clear if you are looking for a particular discussion around certain aspects of the information, which will be presented or demonstrated.
- When presentation slides are shown, to make sure that the text is enlarged for the benefit of those who are visually impaired.
- If any handouts are produced to make sure they are printed in a high-resolution format to ensure readability of the document.
- Printouts of slides for each team members should also be encouraged.

The main rationale for producing guideline *D5* is to introduce simple steps, which can be used to support the creation of common ground when delivering a presentation or showing a demonstration to the team. This includes describing what you are presenting/demonstrating, informing when questions can be asked, naming the sources of information that you used in your work and using appropriate texts and graphics. High-resolution formats also ensure readability of printed documents and a print out of the slides allows team members to refer back to them at a later time if required.
Overall, this guideline and description was proposed by looking at four themes, *Describing the structure, Supporting readability, Naming sources* and *Questions.*

Theme *Describing the structure* was proposed looking at the following two discourse chunks: *Work package 1, discussing plans for deliverables in work package 1* and *Presentation on work package 1, results for evaluation study.* In the two discourse chunks there was evidence of the speaker explaining exactly what they would like to discuss in the meeting that day and the speaker mentioning the structure of the presentation, adding that they will look at the details of the report if the team asks for this.

Theme *Supporting readability* was proposed looking at two discourse chunks. *Project brochure* and *Presentation on work package 1, results for evaluation study.* Here there was evidence of a team member informing everyone that unless high resolution formats are used (talking about a logo) printing would not be of a high quality. There was also evidence of a team member asking for the size of the font to be enlarged to allow them to read the slides which had been prepared for the presentation.

Theme *Naming sources* was proposed looking at discourse chunk *Presentation on what the project voice solution can provide.* Here the speaker named the documents that were used to base this presentation on.

Theme *Questions* was proposed looking at two discourse chunks. *Demonstration of screen reader use (Jaws) by a blind person using the Internet* and *Review of work package 1.* There was evidence of only two situations in which the speaker made it explicit when questions could be asked during either demonstrations or presentations.

Therefore, the goal of *effectively developing presentations and giving demonstrations* was covered by four themes. There was evidence of point 1 in the description *'The structure of any presentation or demonstration that you give should be described, by giving an outline of what is going to be covered'* in two discourse chunks. There was evidence of point 2 in the description *'At the beginning of any presentation or demonstration you should also make it clear whether you would like to be interrupted during the middle or to wait until the end for any questions to be asked'* in two discourse chunks. Observations from the researcher show that in other discourse chunks, the listeners ask questions immediately after a point has been said, whereas some team members wait until they are asked if there are any questions at the end of the presentation before moving onto another area or to someone else's presentation or demonstration. There was evidence of point 3 in the description *'When you are either presenting and/or demonstrating to set the scene you should name the sources that you have consulted'* in one discourse chunk. There was evidence of point 4 in the description *'Make it clear if you are looking for a particular discussion around certain aspects of the information, which will be presented or demonstrated'* in two discourse chunks. There was evidence of point 5 in the description *'When presentation slides are shown, to make sure that the text is enlarged for the benefit of those who are visually impaired.* There was evidence of point 6 in the description *'If any handouts are produced to make sure they are printed in a high-resolution format to ensure readability of the document'* in two discourse chunks. Lastly, point 7 in the description *'Printouts of slides for each team members should be encouraged'* was included following the researcher observing this during the meeting on some occasions, although not a regular occurrence.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in discourse chunk *Presentation on work package 1* for theme *Supporting readability.* Here Desmond requested Charles to enlarge the font size on his presentation slides. Salience of the font size was higher for Charles, the presenter, than for the rest of the team. Desmond was visually impaired.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Difficulty in communicating the salience of information.

When characterising this guideline there was evidence of team members describing the structure of what they were presenting and/or demonstrating. The team was also informed of when questions should be asked. On few occasions the sources of information used were shared with the team as well. The team was also informed of any special circumstances and discussions which will take place. There was evidence of state *1*, agreement when talking about printing document formats and the size of text which was used for the presentations in discourse chunks from the face-to-face meetings.

The next section looks at guideline D6.

8.3.2.6 Guideline D6: Sharing information by using examples/showing demonstrations

Guideline number: D6

Guideline type: Sharing information by using examples/showing demonstrations

Description:

- You are encouraged to provide an example rather than trying to explain something in words.
- Seeing something visual can often help to appreciate and understand what you are being shown.
- You would not benefit from this mode of communication if you were blind.
- If you have someone who is blind in your team to explain to him or her what is visually represented.

The main rationale for producing guideline *D6* is to encourage team members where possible to either use examples to explain something, or to show something visual, rather than presenting it using text. Although reports are a good way of sharing information when people cannot meet face-to-face, team members are encouraged to provide examples and visual material when interactions take place face-to-face.

Overall, this guideline and description was proposed by looking at five discourse chunks, *Demonstration of screen reader use (Jaws) by a blind person using the Internet, Short presentation by each of the partners on what work they have done in the last three months, partner 8 on work package 1, Review of work package 6, dissemination activities, E-learning* and *voice* and *Requirements for the tool from a technical point of view.*

In *Demonstration of screen reader use (Jaws) by a blind person using the Internet* there was evidence of small groups being shown a real life demonstration on how a blind person can access the Internet. In *Short presentation by each of the partners on what work they have done in the last three months, partner 8 on work package 1*, a comment was made that hopefully the user requirements document will make more sense now following the demonstration that was shown in small groups by real life users. In *Review of work package 6, dissemination activities*, an invitation was given to team members to go to their offices to see the work that they do. In *E-learning and voice* there were two relevant situations. One, where a team member suggested to someone in the same partner organisation to show a form in Mindleaders and to also explain the problems that users had in using that form. Two, to send videotapes of the users to team members. Although there were issues regarding the technicality of sending the tapes, the importance of sharing information was brought to the attention of team members. *Requirements for the tool from a technical point of view* shows a technical developer explaining that a prototype was delivered because they thought it would give a better idea than simply writing a document. In this same discourse chunk, there was another situation where the technical developer said that they think showing things are more likely to be understood. For example, developing a prototype than just expecting people to read a document.

Therefore, the goal of *sharing information by using examples/showing demonstrations* was covered by five discourse chunks in seven situations. There was evidence of points 1 and 2 in the description *'You are encouraged to provide examples rather than trying to explain something in words. Seeing something visual can often help to appreciate and understand what you are being shown'* in six situations. In

another situation an invitation was given to show the type of work that they do. Points 3 and 4 in the description *'You would not benefit from this mode of communication if you were blind. If you have someone who is blind in your team to explain to him or her what is visually represented'* was suggested by the researcher. So that you would know what you could do to help if you have blind members as part of your team.

There was no potential evidence of any of Cramton's problems when looking at sharing information by using examples/showing demonstrations so there was no need to include anything additional in the proposed guidelines than that already mentioned.

When characterising this guideline there was evidence of practical demonstrations being shown. There was also evidence of state *1*, agreement when talking about information which can be shown to team members as they find it interesting in discourse chunks from the face-to-face meetings.

The next section looks at guideline D7.

8.3.2.7 Guideline D7: Making explicit requests

Guideline number: D7

Guideline type: Making explicit requests

Description:

- It is important to inform the team if any specific guidance is required that will enable you to continue with the work that you are responsible for.
- To make sure that your request is as explicit as possible for gaining full benefit.

The main rationale for producing guideline *D7* is to allow team members to receive information that they want and need. As teamwork involves interacting with others, it is important to be clear and concise when making any requests. If explicit requests are not made you can end up receiving something totally different from what you originally expected. When working towards a tight deadline, this can result in an ineffective use of time.

Overall, this guideline and description was proposed by looking at 12 discourse chunks *Overview of the market for access technology, Short presentation by each of the partners on what work they have done in the last three months – partner 8 on work package 1, partner 2 on work packages 2 and 6* and *partner 7, Developing a plan of future work, Work package 6, dissemination, standardisation and exploitation, Demonstration of the partner 7 portal, Presentation on work package 1, Requirements for the tool from a technical point of view, Demonstration of the prototype, Annual review* and *Administrative issues* in a total of 17 situations.

Therefore the goal of *making explicit requests* was covered by 12 discourse chunks in 17 situations. There was evidence of points 1 and 2 in the description *'It is important to inform the team if any specific guidance is required that will enable you to continue with the work that you are responsible for. To make sure that your request is as explicit as possible for gaining full benefit'.*

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in three situations from discourse chunks *Short presentation by each of the partners on what*

work they have done in the last three months - partner 2 on work packages 2 and 6 and *Work package 6, dissemination, standardisation and exploitation.* There was also potential evidence of *Failure to communicate contextual information* in discourse chunk *Requirements for the tool from a technical point of view.*

Difficulty in communicating the salience of information was observed when Desmond said that the information that has been requested had already been provided. Annie said that Christopher was expecting more information than that. Another time when Annie had requested the manual, however, no one had sent it. Salience was higher for the person making the request rather than who the request was made too. Lastly, when Ronnie reported to Fabian he had already provided all of the necessary information. In this situation the salience of requesting information was higher for Fabian than to Ronnie who the information was being requested from. *Failure to communicate contextual information* was observed when Annie informed the team that if anyone expected to see something in particular they should be informed before hand to allow preparations to be made.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problems Difficulty in communicating the salience of information and Failure to communicate contextual information.

When characterising this guideline there was evidence of explicit requests being made to the team. There was evidence of state *1*, agreement and state *2*, disagreement, when explicit requests were made and reactions to explicit requirements in discourse chunks from the face-to-face meetings.

The next section looks at guideline D8.

8.3.2.8 Guideline D8: Informing on changes

Guideline number: D8

Guideline type: Informing on changes

Description:
- Any changes should be notified to everyone and not just to whom it concerns.

The main rationale for producing guideline *D8* is to remind everyone that when working as part of a team, changes should not just be communicated to who it concerns, everyone should be notified. Changes do not have always have to be negative. For example, team members leaving. Changes can also be positive. For example, new members joining the team.

Overall, this guideline and description was proposed by looking at three themes, *Project specific*, *Team members* and *Roles* from five discourse chunks. They were *Short presentation by each of the partners on what work they have done in the last three months – partner 5, Review of the meeting agenda, Informing of late arrival, Review of work package 1* and *Review of work package 6, dissemination activities.*

Theme *Project specific* was proposed looking at discourse chunk *Short presentation by each of the partners on what work they have done in he last three months – partner 5.* Here the team was informed of a change that had taken place.

Theme *Meam members* was proposed looking at three discourse chunks. *Review of the meeting agenda, Informing of late arrival* and *Review of work package 1.* Here the team was informed of people who had left the team, people who were leaving the team, new roles and reasons for being late to attend the meeting.

Theme *Roles* was proposed looking at discourse chunk *Review of work package 6, dissemination activities.* Here the team was informed of the new role for Fabian following Jonathan's departure from the project team.

Therefore the goal of *informing on changes* was covered by six discourse chunks from three themes. The description *'Any changes should be notified to everyone and not just to whom it concerns'* shows that there was evidence of the team being informed of changes in work arrangements, people leaving the team, people who had left the team and reasons for being late to attend the meeting.

There was no potential evidence of any of Cramton's problems when looking at informing on changes so there was no need to include anything additional in the proposed guidelines other than that already mentioned.
When characterising this guideline there was evidence of changes being informed to the whole team in discourse chunks from the face-to-face meetings.

The next section looks at guideline D9.

8.3.2.9 Guideline D9: Making decisions

Guideline number: D9

Guideline type: Making decisions

Description:
- Decisions should be made by the whole team, not just one or two team members.

The main rationale for producing guideline *D9* is to encourage the team to make decisions and not just one or two individuals. It is also important that decisions are made before an event or activity is worked on, not after.

Overall, this guideline and description was proposed by looking at six discourse chunks. *Discussion, Review of work package 6, dissemination activities, E-learning portal, E-learning and voice, Discussion of the tool* and *Discussion of review questions from review report.* In five discourse chunks there is evidence that an opportunity was given to agree with what had been proposed. In one discourse chunk a team member reminded everyone of the importance to have a decision made by the team.

Therefore the goal of *making decisions* was covered by six discourse chunks. The description *'Decisions should be made by the whole team, not just one or two team members'* shows that in the case study, the team did make decisions and that the team was reminded of the importance to make team decisions.

There was no potential evidence of any of Cramton's problems when looking at making decisions so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of the team being involved in decision making. There was evidence of state *1*, agreement and state *2*, disagreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline D10.

8.3.2.10 Guideline D10: Establishing regular reporting periods

Guideline number: D10

Guideline type: Establishing regular reporting periods

Description:

- Communication in the team is important.
- If the team is going to work together for a longer period of time, a regular reporting period should be set up.
- To be effective the reporting period must be monitored.

The main rationale for producing guideline *D10* is to reinforce the importance of ensuring adequate communication amongst the team. When face-to-face meetings are not regular, other modes should be established to keep in touch with the team. E-mail is one popular way of staying in touch with the team. Reporting to the team is important. To be effective all team members should be made aware from the start of their work together, what the expectations of the team are in terms of regular reporting. For this guideline to work well, regular monitoring is encouraged, and action must be taken when any deviation takes place.

Overall, this guideline and description was proposed by looking at two discourse chunks *Reporting* and *Developing a plan of future* work. In the first discourse chunk a proposal was made to have a regular reporting period to keep the team informed on what progress is being made in the work that is undertaken. In the second discourse chunk a team member proposed that lots of small deadlines are introduced in the work plan that is being developed rather than introducing a regular reporting period.

Therefore, the goal of *establishing regular reporting periods* was covered by two discourse chunks. The description in point 2 *'If the team is going to work together for a period of time, a regular reporting period on progress should be set up'* was included based on the proposal that a team member made. However, no decision was reached on what reporting period would be used. The description in point 3 *'To be effective the reporting period must be monitored'* was included by the researcher as although some members agreed that the reporting period would be every 15-days no monitoring took place and the researcher believes that in order for something to be effective monitoring must take place. This is to allow steps to be taken when results are not achieved.

There was potential evidence of Cramton's problems *Difficulty in interpreting the meaning of silence* and *Failure to communicate contextual information* in discourse chunk *Reporting*. For this first problem Annie said that they had experienced a 20-day delay in their work because they had not received any input from the partners they were working with. Annie may not have understood why there was silence amongst the team members not communicating the requested information. For the second problem Annie

said that they did not know what people were working on. This situation reveals that the team members were not sharing their contextual information with the team.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problems Difficulty in interpreting the meaning of silence and Failure to communicate contextual information.

When characterising this guideline there was evidence of certain team members identifying the need to set up regular reporting periods in discourse chunks from the face-to-face meetings. However, there was no evidence of the reporting period being monitored.

The next section looks at guideline D11.

8.3.2.11 Guideline D11: Summarising information

Guideline number: D11

Guideline type: Summarising information

Description:

- You are encouraged to summarise what were the main points covered after each presentation, and not to wait until the end of the meeting.
- To re-summarise what were the main points covered.
- If there will be another day dedicated to the meeting to summarise what is going to be covered.
- Once the meeting has closed and if time permits a short planning meeting should be encouraged to develop a work plan on how team members can work together, towards joint tasks/activities. This activity is strongly encouraged, especially if the team members are not collocated (based together in the same office).

The main rationale for producing guideline *D11* is to encourage team members to offer summaries at the end of their presentation and/or demonstration. This can be beneficial especially when presentations and demonstrations are lengthy. Re-summarising any main points covered can allow team members to check that they were aware of them, and to clarify anything that is not clear. Summaries at the end of each meeting day should also take place. If another meeting is going to be held on a second day, it can be useful to summarise what is going to be covered as well. This allows team members to prepare any questions that they would like to ask, and to identify if any changes are required to meet the needs of any team members. If time is available planning meetings are also encouraged, especially for teams that are not collocated. Hence plans and decisions can be made whilst everyone is still together face-to-face, and can be faster than communicating by e-mail. Actioning this face-to-face allows team members to be aware of what needs to be done once they return back to their partner organisations, offices or departments. This can help ensure greater progress during those interactions as everyone is aware of what needs to be done.

Overall, this guideline and description was proposed by looking at six discourse chunks. *Closing for first day of the meeting, Conclusions from the meeting, Any other business, Review of work package 1, questionnaire data gathered, Review of agenda for tomorrow's meeting* and *Planning a user group meeting*. Two discourse chunks included a summary of conclusions from the meeting, identifying that there will be a discussion to discuss the work plan, each with a frequency of two. In two discourse

chunks, identifying if anything was missed before closing the meeting and highlighting what will be discussed on the next day of the 2-day meeting, each with a frequency of one.

Therefore the goal of *summarising information* was covered by six discourse chunks. There was evidence of point 1 in the description *'You are encouraged to summarise what were the main points covered after each presentation, and not to wait until the end of the meeting'* in two discourse chunks. There was evidence of point 3 *'If there will be another day dedicated to the meeting to summarise what is going to be covered'* in one discourse chunk. The final point in the description *'Once the meeting has closed and if time permits a short planning meeting should be encouraged to develop a work plan on how team members can work together, towards joint tasks/activities'* was proposed by the researcher and is strongly encouraged, especially if team members are not collocated (based together in the same office). There was evidence of point 4in two discourse chunks.

There was no potential evidence of any of Cramton's problems when looking at summarising information so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of summaries being provided to highlight the main points covered. There was also evidence of state *1*, agreement, when identifying the need to provide summaries and planning a short meeting with team members working together on a specific task before everyone leaves that meeting. There was evidence of state *2*, disagreement too in discourse chunks from the face-to-face meetings.

The next section looks at guideline D12.

8.3.2.12 Guideline D12: Updating on progress

Guideline number: D12

Guideline type: Updating on progress

Description:

- If you attend another meeting looking at the same goals discussed during a previous meeting, provide an update of what progress had been made in your work since the last time you met.

The main rationale for producing guideline *D12* is for the team to be shown what progress has been made in areas previously discussed. This allows team members to be kept informed on the current situation. Reporting on progress does not always have to be positive. For example, the team is also encouraged to report on areas where progress is not made to a level that was sought. By bringing this to attention the team may suggest how that issue(s) can be dealt with. Reporting on progress is important as some teamwork activities have work from one area fed into another.

Overall, this guideline and description was proposed by looking at work packages 1-6 and various discourse chunks. Discourse chunks for work package 1 are *Review of work package 1, questionnaire data gathered, Work package 1, e-learning presentation, Overview of circulated report, Discussion of issues emerging from presentation on work package 1, Presentation on work package 1, discussing plans for deliverables in work package 1, Presentation on work package 1, Overview of the evaluation sessions* and *Presentation on work package 1.*

Discourse chunks for work package 2 are *Review of work package 2, Presentation of a demo, Presentation on what the project voice solution can provide* and *Review of work by work packages 2/3/4.*

Discourse chunks for work package 3 are *Presentation by partner 9, e-learning and voice, Review of work by work package 2/3/4, Discussion of the tool, Presentation on work package 1, discussion of issues emerging from work package 1, Requirements for the tool from a technical point of view, Work package 3 – development of the tool. Review of work done since the last meeting, Demonstration of the prototype, Creating a link for stylesheets* and *Presentation of partner 4 by Michael's translator.*

Discourse chunks for work package 4 are *Overview of evaluation sessions, E-learning portal, Work package 1, e-learning presentation, E-learning and voice, Demonstration of the partner 7 portal, Discussion of the tool, Presentation on work package 1 – discussing plans for deliverables in work package 1, E-learning portal* and *Demonstration on parser.*

Discourse chunks for work package 5 are E-*learning portal, Review of work package 1, questionnaire data gathered, Overview of evaluation sessions, Presentation on work package 1 – results for evaluation study, Presentation on work package 1, Presentation on work package 5, Requirements for the tool from a technical point of view* and *Presentation on work package 1, discussing plans for deliverables in work package 1.*

Lastly, discourse chunks for work package 6 are *Review of work package 6, dissemination activities, Dissemination, Project brochure, Work package 6: dissemination, standardisation and exploitation, Review of work package 6* and *Work package 6.*

Therefore, the goal of *updating on progress* was covered by six themes, the *project's six work packages.* There was evidence of the description *'If you attend another meeting looking at the same goals discussed during a previous meeting, provide an update on what progress had been made in your work since the last time you met'.*

There was no potential evidence of any of Cramton's problems when looking at updating on progress so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of team members updating the team on progress that has been made in discourse chunks from the face-to-face meetings.

The next section looks at guideline D13.

8.3.2.13 Guideline D13: Consulting the agenda once everyone has arrived to the meeting

Guideline number: D13

Guideline type: Consulting the agenda once everyone has arrived to the meeting

Description:

- When you know someone is going to be late arriving to the meeting, the team should be informed.
- When everyone has arrived, the agenda should be consulted to establish if any necessary changes need to be made, since the draft agenda was circulated by e-mail (Guideline number B1).
- For example, swapping around items due to team member constraints.

The main rationale for producing guideline *D13* is to check that the agenda, which was proposed by e-mail, is still relevant to the meeting situation and to identify if changes are necessary. It is also important to inform the team when you know that someone is going to be late. A decision can then be made on whether to wait for the late arrival or to make a start. Waiting for late arrivals is often dependent on how long everyone will have to wait and time constraints of other team members. However, if a meeting has already started, it is important to summarise any information that may have been missed at the next available opportunity. For example, during a break as it may cause disruption to offer the summary during the meeting. Although agendas are useful to plan how time is going to be divided during the meeting, it is also important to remain flexible, as sometimes an unexpected event can lead to a change in the circulated agenda.

Overall, this guideline and description was proposed by looking at three discourse chunks. *Informing of late arrival, Attempting to start the meeting* and *Review of meeting agenda.* In two discourse chunks information was communicated to say that there were missing team members, however, in both situations it was said that they should make a start without them. In another discourse chunk there was evidence of the agenda for the next day's meeting being reviewed.

Therefore, the goal of *consulting the agenda once everyone has arrived to the meeting* was covered by three discourse chunks. There was evidence of point 1 in the description *'When you know someone is going to be late arriving to the meeting, the team should be informed'* in two discourse chunks. The description in points 2 and 3 *'When everyone has arrived, the agenda should be consulted to establish if any necessary changes need to be made, since the draft agenda was circulated by e-mail (Guideline B1). For example, swapping around items due to team member constraints'* was included by the researcher even though it was not observed in the case study as the researcher believes it will be beneficial. There was also evidence of partner 4 not providing a short presentation of what work they had done in the last three months as they had already left the meeting. The researcher feels that if the order had been changed in the agenda this might have allowed them to present their work.

There was potential evidence of Cramton's problem *Unevenly distributed information* in three discourse chunks, all called *Reporting* in three situations. In the first situation, Hazel informed Jack that they could start the meeting without Mary who was going to be late. In this situation Mary may have missed some of the information which was communicated to the team in her absence. As Mary had arrived by 10am, she did not miss a lot of the meeting. The second situation was similar to the first. Here, Desmond informed Jack that they could start the meeting without Paul. In this situation Paul would also have

missed some of the information. In the final situation there was evidence of some late arrivals to the meeting, so they may have missed some of the information that Jack had been sharing with members of the team who had already arrived.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Unevenly distributed information.

When characterising this guideline there was evidence of state *1*, agreement and state *2*, disagreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline D14.

8.3.2.14 Guideline D14: Structuring the meeting

Guideline number: D14

Guideline type: Structuring the meeting

Description:

- All members of the team should feel that they can propose a change to the agenda at any time during the meeting.
- For example, noticing that something was missing from the circulated agenda or after watching a presentation establishing a need to allocate additional time to discuss other issues that may have emerged.

The main rationale for producing guideline *D14* is to encourage all team members to make changes to structure the current meeting to meet team members individual needs. As described in guideline *D13* agendas are useful to plan the allocation of time during a meeting. However, it is important to remember to remain flexible. If anything additional is identified that should be added to the agenda, the team should be informed. The meeting structure will influence when additional items can be incorporated into the agenda that already exists.

Overall, this guideline and description was proposed by looking at five discourse chunks. *Change to the agenda, Proposing a change in the agenda, Work package 1, e-learning presentation, Informing of changes to the afternoon session* and *Demonstration of the partner 7 portal.* In three discourse chunks a proposal was made to change what had already been included in the agenda. In another two discourse chunks there was evidence of the team being informed of the change in the agenda.

Therefore, the goal of *structuring the meeting* was covered by five discourse chunks. There was evidence of points 1 and 2 in the description *'All members of the team should feel that they could propose a change to the agenda at any time during the meeting. For example, noticing that something was missing from the circulated agenda or after watching a presentation establishing a need to allocate additional time to discuss other issues that may have emerged'* in three situations. Once when time had not been allocated to share relevant information to the team. Another time to allow team members time to read the document which was being referred too. Lastly, due to a technical problem, a proposal was made to show the demonstration that had been prepared on day two of the meeting.

There was no potential evidence of any of Cramton's problems when looking at structuring the meeting so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of state *1*, agreement, state *2*, disagreement, state *3*, neutral position and state *4*, no agreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline D15.

8.3.2.15 Guideline D15: Making presentation preparations

Guideline number: D15

Guideline type: Making presentation preparations

Description:

- If you were not happy with any presentation, which was given, to offer those team members more
  Time,
  Resources and
  Support
  In preparing for another presentation.

- If you have already given a presentation, which may be useful to someone else in making preparations for their presentations, you should find a way of transferring files from one computer to another, if it cannot be placed immediately onto a central store for sharing with the entire team.

The main rationale for producing guideline *D15* is to support the planning of a presentation which did not meet your needs or expectations. When presentations are delivered that do not meet your needs or expectations, if time permits, team members should be given an opportunity to re-present their work. For this to be effective, presenters must be told what needs to be presented, making clear what you expect to see. Any resources, which can assist the presenters in their work, should also be made available to them.

Overall, this guideline and description was proposed by looking at three discourse chunks. *Presentation on what the project voice solution can provide, Overview of the evaluation sessions* and *work package 1, e-learning presentation* in four situations. In two situations existing presentations were requested. In another situation a team member said that an important document was not considered and that the presentation should not be continued as it was based on incomplete data. Lastly, there was evidence of an additional presentation delivered to the team, as the first presentation did not meet the needs of team members.

Therefore, the goal of *making presentation preparations* was covered by three discourse chunks. There was evidence of point 1 in the description *'If you were not happy with any presentation, which was given, to offer those team members more time, resources and support in preparing for another presentation'* in discourse chunk *Overview of the evaluation sessions,* when a team member informed the presenter that an important document had not been considered when making preparations for the meeting. There was evidence of point 2 in the description *'If you have already given a presentation, which may be useful to someone else in making preparations for their presentations, you should find a way of transferring files from one computer to another, if it cannot be placed immediately onto a central store for sharing with the entire team'* in one discourse chunk. In another discourse chunk there was also evidence of identifying that a presentation that had been given was useful and a copy was requested from the presenter.

There was potential evidence of Cramton's problem *Difficulty in interpreting the salience of information* in discourse chunk *Presentation on what the project voice solution can provide* in three situations. First, when Paul said that the document that had been circulated should have been referred to when making the presentation preparations. Second, when Ronnie mentioned that Annie had missed an important document when making preparations for this presentation. Lastly, when the presentation of Annie was not completed and not returned back to following some queries. In all three situations the salience was higher for those that raised the issue than who it concerned.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Difficulty in communicating the salience of information.

When characterising this guideline there was evidence of state *1*, agreement, state *2*, disagreement and state *5*, no growth in mutual understanding in discourse chunks from the face-to-face meetings.

The next section looks at guideline D16.

8.3.2.16 Guideline D16: Selecting a date for a next meeting

Guideline number: D16

Guideline type: Selecting a date for a next meeting

Description:

- If another meeting is required, the date should be selected whilst all team members are together.
- To hold an optimal meeting, team members should arrive the night before if they are not in easy travel distance.
- Team members should be encouraged to stay at the same hotel if their attendance to the meeting requires an over night stay.
- This is to encourage informal discussions during their own time.

The main rationale for producing guideline *D16* is to encourage teams to make decisions for dates of a next meeting, whilst everyone is together face-to-face. Undertaking this activity by e-mail can be time consuming, often resulting in a large number of messages being exchanged. For a meeting to be optimal, any team members that cannot arrive by the start time are encouraged to stay at a hotel the previous night. By everyone staying at the same hotel, informal discussions can take place between partners. This is particularly important when team members do not have an opportunity to meet regularly.

Overall, this guideline and description was proposed by looking at five discourse chunks. *Next meeting date, Discussion on choosing a date for the next consortium meeting, Any other business, Date of next meeting* and *Date for next meeting.* In four of the five discourse chunks a discussion took place to establish the date of the next meeting. In another discourse chunk the timing and structure of the meeting was discussed.

Therefore, the goal of *selecting a date for a next meeting* was covered by five discourse chunks. Point 1 of the description *'If another meeting is required, the dates should be selected whilst all team members are together'* was proposed as the researcher observed this in the case study. There was evidence of points 2, 3 and 4 in the description *'To hold an optimum meeting, team members should arrive the night*

before if they are not in easy travel distance. Team members should be encouraged to stay at the same hotel if their attendance to the meeting requires an over night stay. This is to encourage informal discussions during their own time' in two discourse chunks. One mentioned meetings should start on Monday mornings and people should not arrive on that day. Two, a proposal was made for everyone to stay at the same place to allow informal contact to take place if necessary during team members own time. However, an agreement was reached that the hotel should be close to the meeting venue.

There was potential evidence of Cramton's problem *Unevenly distributed information* in discourse chunk *Next meeting date*. Here it was observed that Ben asked if he could have a date for the next meeting, and Lucy thought it was the 18th and 19th of March, however, Hazel said 11th and 12th of March. This situation shows that two team members had different dates in mind. But Lucy had made it clear that she was not sure if 18th and 19th of March were the definite dates.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Unevenly distributed information.

When characterising this guide there was evidence of state *1*, agreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline D17.

8.3.2.17 Guideline D17: Encouraging self testing

Guideline number: D17

Guideline type: Encouraging self testing

Description:

- If time permits and technology is available, self-testing should be encouraged (interacting with a piece of software or technology to gain an appreciation of how it works).
- This may make a difference from just receiving the information from other team members.
- The benefit, which is gained, will be determined by the length of available time.
- Even if a small amount of time is available this activity is strongly encouraged.

The main rationale for producing guideline *D17* is to encourage team members to take the opportunity when there is time available for self-testing any equipment, software or technology. More specifically this guideline encourages team members to have a go with the technology at the meetings. Encouraging self-testing is not referring to the person doing the demo. This activity can be useful, especially when you are not familiar with what has been shown or demonstrated by someone else. By undertaking this activity, you may appreciate what was being shown by testing it on your own. Although the user or demonstrator can produce reports and summaries, this is no substitute for self-testing. Even if a large amount of time cannot be dedicated to this activity, it is still encouraged. To continue with the self-testing, you can ask if those resources are available from another place, and where they can be found. This is covered in guideline *A17*.

Overall, this guideline and description was proposed by looking at five discourse chunks. *Change to the agenda, Presentation of a demo, Work package 1, overview of circulated report, Review of work by work package 2/3/4* and *Work package 3 – development of the tool. Review of work done since the last meeting.* In one discourse chunk an opportunity to interact with the demonstrated technology was offered. In two discourse chunks a team member asked if they could test themselves what was being demonstrated. In another situation a team member asked if the tool which is being proposed could be found on e-mail. Lastly, a team member asked if they would be able to access the prototype which was being developed.

Therefore, the goal of *encouraging self-testing* was covered by five discourse chunks. There was evidence of point 1 in the description *'If time permits and technology is available, self-testing should be encouraged (interacting with a piece of software solution or technology to gain an appreciation of how it works)'* in the discourse chunks. The description in points 2, 3 and 4 *'This may make a difference from just receiving the information from other team members. The benefit, which is gained, will be determined by the length of available time. Even if a small amount of time is available this activity is strongly encouraged'* was assumed by the researcher. There was evidence of conducting self-testing in other ways which are also relevant. Evidence of this was found in the case study.

There was no potential evidence of any of Cramton's problems when looking at encouraging self-testing so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of state *1*, agreement in discourse chunks from the face-to-face meetings.

The next section looks at guidelines proposed for interactions taking place using e-mail, after attending a face-to-face meeting.

8.3.3 Guidelines for e-mail interactions after a face-to-face meeting

Section 8.3.1 mentioned that 21 guidelines were produced to promote mutual understanding when interacting by e-mail. Three guidelines were for before any face-to-face interactions took place. Eighteen guidelines were for after face-to-face interactions had taken place.

Guidelines A1-A18 summarised in table 8.7 are presented using three category or aspects by Mulder (2000). Thirteen guidelines belong to social interaction, personal and cultural utterances, referred to here as expectations of team members. Three guidelines belong to planning and structuring activities, not process. Two guidelines belong to technology, that is utterances related to technology use or media choice.

Guideline Number	Guideline type
Expectation of team members	
A1	Circulating information to the entire team
A2	Monitoring reporting periods to the team
A3	Keeping team members up to date with whom they are working with
A4	Project glossary
A5	Informing with your plans before starting on work/giving a summary of what has been achieved
A6	Starting on work earlier than planned
A7	Circulating draft documents
A8	Summarising changes
A9	Sharing relevant information to members of the team
A10	Sharing information with people outside of the team
A11	Producing reports
A12	Document formats
Planning and structuring activities	
A14	Circulating meeting minutes
A15	Informing on non-working periods
A16	Next meeting
Using technology	
A17	Encouraging self-testing
A18	Storing relevant documentation

Table 8.7: Eighteen guidelines to promote mutual understanding after face-to-face interactions using e-mail

Guidelines A1 – A18 are examined in turn.

8.3.3.1 Guideline A1: Circulating information to the entire team

Guideline number: A1

Guideline type: Circulating information to the entire team

Description:

- A method for circulating information to all team members at the same time should be established.
- One possible solution is using a group mailing list.
- The list must be regularly monitored, by adding new names and deleting old ones.
- To avoid ambiguity and the possibility of receiving duplicate messages, only one mailing address should be used.

The main rationale for producing guideline *A1* is to encourage the types of interactions which take place during a face-to-face meeting where the whole team is present, to be achieved via other forms allowing communication with the whole team to take place. A group mailing list is suggested here as a simple way of achieving team communication. The mailing list must be reviewed on a regular basis to check that it includes everyone that should be included. Team members can become upset when an e-mail is received on an area that they are no longer working on. Also, for those team members that are working on an area and do not receive information, they may feel like they are not really part of the team. In addition, to avoid ambiguity only one mailing address should be used. Using one mailing address also avoids the problem of receiving duplicate messages.

Table 8.8 shows how this guideline was proposed, using sources of empirical data collected for this investigation.

Guideline number: A1

Guideline type: Circulating information to the entire team

Description:

- A method for circulating information to all team members at the same time should be established.
- One possible solution is using a group mailing list.
- The list must be regularly monitored, by adding new names and deleting old ones.
- To avoid ambiguity and the possibility of receiving duplicate messages, only one mailing address should be used.

Rationale:

When working in a collocated team it may be feasible to have information stored in one place. This does not have to be using electronic media as all team members are together. However, when teams become dispersed this method becomes unfeasible. For dispersed teams, information should be stored using electronic media.

Sources:

Supporting materials:

- **Source**: 18/12/01 Discourse chunk Project mailing list address, (1st meeting) Appendix G

Desmond: Paul is not in the mailing list please include him.
Jack: Mailing list is the next point, so I will ask
Jack: Ok the mailing list. This is at present the mailing list, another web page. The address is project@xxxx.xom. Okay if you send an email to this address it will automatically be sent to this entire people. This and the next step I will show you. Please check that the names you want to be part of the project are here. Is it partner 7 or 5?
Lucy: No, no, it is ok. G is partner 5. That is why you have partner 5 ***(Sub-state 1.1)***
Jack: yeah. I noticed that when you sent it [laughs]. Ok, partner 3 they have set their own mailing list, so now I think it is redundant and I am sending to the mailing list and to the address. You agree I will delete this and only send to the project mailing list. ***(Sub-state 1.1)***
Charlotte: Yes. I think that is probably the easiest as we can all access it. ***(Sub-state 1.1)***
Jack: Otherwise you will have twice the e-mails
Charlotte: Yes. ***(Sub-state 1.1)***
Jack: Ok Paul is not here. Do you know his email address? ***(Sub-state 1.1)***
Desmond: Yes. You can write it down. It is very easy. It is ***(Sub-state 1.1)***
Jack: Ah, I can do it. ***(Sub-state 1.1)***
[Laughter]

Jack: is it this one?Ben: on the desktop at the bottom, there is the dng set-up.
Jack: This one?
Ben: Yes, ok. Press it and then yes. ***(Sub-state 1.1)***
Jack: This is not the epp, ok this is the second page. Please make sure all the names are on there
Hazel: We need to add one person. Sajal what is your email address? ***(Sub-state 2.1)***
Sajal: ax141@soi.city.ac.uk ***(Sub-state 1.1)***
[Hazel repeats this address for Jack]
Desmond: Ok Paul's mail. x-x-x-x at xxxxxx.de ***(Sub-state 1.1)***
Hazel: Very sophisticated
Jack: okay ***(Sub-state 1.1)***
[Laughter]
Jack: So everyone agrees with this mailing list. It is not a problem, you can send me I need this other people or just like it is working here anymore, please delete.

- **Source**: 15/03/02 Discourse chunk Meeting minutes (2nd meeting) Appendix I

Paul: Also, it would be certainly nice for the rest of the partners, to be reminded of things like that in um [pause] through minutes. Maybe, it is, for some reason, I did not receive the London, the minutes of the London meeting.
Jack: it was sent and included on the ftp site ***(Sub-state 2.1)***
Paul: was it
Annie: yes ***(Sub-state 1.1)***
Paul: was it on the ftp server?
Jack: yes ***(Sub-state 1.1)***
Paul: Ok, sorry. My fault ***(Sub-state 1.1)***
[Hazel gives a small laugh]
Jack: Maybe you did not receive it, because you were not on the mailing list
Paul: Maybe, I will go and check, but thank you ***(Sub-state 3.1)***

- **Source**: 15/03/02 Discourse chunk FTP site (2nd meeting) Appendix I

Jack: folder of the ftp site. So, it is the first thing you find
[Some own discussions are taking place]
Jack: I would ask you to check that these [pauses] you also have, you also have the mailing list. It is also in the root
[Hazel still whispering to Kenneth]
Jack: SO, whenever, you need the address for someone it will be there Please check it again. This, I think is complete, what you have been Sending me the names and I have three more pages
[Hazel laughs]
Hazel: its ok, its ok ***(Sub-state 1.1)***
Jack: I have [pause] I have included here Adam, he is new from the last meeting
[Some own discussions are taking place]
Jack: partner 3 is in the mailing list,

- **Source**: 15/03/02 Discourse chunk E-mail address for mailing list (2nd meeting) Appendix I

Jack: so I guess to include Paul Brass
Mary: yeah. [Pause] Can I ask a question? [Mary puts up her hand] ***(Sub-state 1.1)***

Jack: ah yes ***(Sub-state 1.1)*** Mary: Um, when you sent your e-mails Jack, a couple of days ago, and last week as well, about the meeting, you did not send them to project@xxxx.com [Own discussion between Paul, Desmond and Kevin] Mary: you sent it to a longer e-mail address, is there a difference in the people who are included Jack: No, no, no [Own discussion between Paul, Desmond and Kevin – they laugh] Jack: You just say that Mary: the server name, yes the server name Jack: I do not know, I saw an e-mail sent, a reply from you or somebody, no [pause] or someone who is working with you ***(Sub-state 3.1)*** Mary: yes ***(Sub-state 1.1)*** Jack: and I noticed that. And I think the server Hazel: right ***(Sub-state 1.1)*** Jack: put the different address Mary: because Jack: there is only one Mary: I had a problem replying to that e-mail Jack: yeah ***(Sub-state 1.1)*** Mary: and it would not recognise the spelling of the server Jack: and I Mary: and I just used the old one Jack: I Mary: and I was interested to find out, ok, ok, ok, [Annie and Christopher are looking at a document] Jack: So, this is the next [pause] I included KC Hazel: yes, good, thank you ***(Sub-state 1.1)*** [Can hear some whispering] Jack: And from partners 1 and 2, [pause] two new guys, Conwayne, who is working on the technical side and [pause] and then you have mail from Sajal Hazel: hmmm ***(Sub-state 1.1)*** Mary: hmmm ***(Sub-state 1.1)*** Jack: on the list Lucy: And Adam is working in partner 7 not under 5 Jack: It was [pause] included in the list, ok, I am sorry. From our side we have three new people working on it. Jonathan has left [Someone laughs] Jack: That is enough, it will be included for until he said until we stop sending him e-mails, so [pause] this arose yesterday, remember the [Some own discussions taking place]
Evidence of Cramton's problems There was potential evidence of Cramton's problem unevenly distributed information when proposing this guideline.
Summary Overall, observing what this team was doing derived the proposed guidelines and the description. The researcher also included some of her own ideas.

Table 8.8: Linking sources of empirical data to guideline A1: Circulating information to the entire team

Overall this guideline and description was proposed by examining the contents of four discourse chunks from supporting material. Discourse chunks were *Project mailing list address, Meeting minutes, FTP site* and *E-mail address for mailing list*. Each discourse chunk looked at issues concerning the mailing list.

Therefore the goal of circulating information to the entire team was covered in supporting material from four discourse chunks. There was evidence of point 1 in the description *'A method for circulating information to all team members at the same time should be established'*. In discourse chunk *Project mailing list address*, the project administrator said that the mailing list can send a mail to everyone that is included on the list. There was evidence of point 2 in the description *'One possible solution is using a group mailing list'* so the researcher proposed this. There was evidence of point 3 in the description *'The list must be regularly monitored, by adding new names and deleting old ones'*. Identifying new names was found in three of four discourse chunks where discussions took place involving new names to be added to the list, informing everyone of new names already added to the list and informing everyone that the project administrator must be informed if there are any changes in names of people working on the project. Although there was no evidence of informing the project administrator of team members names that need to be removed from the list, the researcher thought that it should be included as removing names is the opposite action to adding new names. Lastly, there was evidence of point 4 in the description *'To avoid ambiguity and the possibility of receiving duplicate messages, only one mailing address should be used'*. This was found in discourse chunk *Project mailing list address*, where a team members address was removed, as it was included twice, otherwise would result in duplicate messages being received.

There was potential evidence of Cramton's problem *Unevenly distributed information* in two discourse chunks. First in discourse chunk *Project mailing list address* when Desmond informed Jack that Paul was not included on the mailing list and requested for him to be added. In this situation Paul was not receiving the e-mail messages that were being sent to the team, and as a result may have missed some of the information that was being circulated. In the second discourse chunk *Meeting minutes,* this problem was observed when Paul informed Jack that he did not receive the London meeting minutes. Jack said this might be because he was not included on the mailing list.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Unevenly distributed information.

When characterising this guideline there was supporting material from state *1*, agreement, state *2*, disagreement and state *3*, neutral position in discourse chunks from the face-to-face meetings.

The next section looks at guideline A2.

8.3.3.2 Guideline A2: Monitoring reporting periods to the team

Guideline number: A2

Guideline type: Monitoring reporting periods to the team

Description:

- Once a regular reporting period for receiving updates has been established, to be effective it must be monitored.
- If there is no manager or leader in the team, each team member should take responsibility to speak out.
- When the team works together for more than one meeting, providing an update is important, especially when attending face-to-face meetings may be limited

The main rationale for producing guideline *A2* is to action what was already discussed during the face-to-face meeting, guideline *D10 – establishing regular reporting periods*. To ensure that everyone produces their reporting in a similar format a template may be used. When team members do not provide regular reporting, suitable action should be taken. For example, sending a polite reminder.

Overall, this guideline and description was proposed by examining the contents of two discourse chunks *Reporting* and *Developing a plan of future work*. The researcher found no evidence of e-mail messages being sent to the team in between the face-to-face meetings on a regular basis. However, the supporting material did show that a proposal was made to have regular reporting, but no time period had been agreed by team members. Another discussion had also taken place showing that one team member preferred to use lots of smaller deadlines than introducing a regular reporting period for the team.

Therefore, the goal of monitoring reporting periods to the team was covered in two discourse chunks. No evidence of point 1 in the description was found *'Once a regular reporting period for receiving updates has been established, to be effective it must be monitored'*. However this is something the researcher proposed. There was no evidence of point 2 in the description as well *'If there is no manager or leader in the team, each team member should take responsibility to speak out'*. The researcher included this point so that all team members feel like they can comment if the monitoring is not being adhered to as this

would be in their best interest to bring this matter to attention. Lastly, point 3 in the description *'When the team works together for more than one meeting, providing an update is important, especially when attending face-to-face meetings may be limited'* was included because the researcher felt that this action was important to include in the guideline.

There was no potential evidence of any of Cramton's problems when looking at monitoring reporting periods to the team so there was no need to include anything additional in the proposed guidelines other than that already mentioned and what the researcher had included not being observed in the case study.

When characterising this guideline there was supporting material from state *1*, agreement, state *2*, disagreement, state *4,* no agreement and state *5*, no growth in mutual understanding in a discourse chunk from the face-to-face meeting. However, there was no evidence that the reporting period was being monitored and as a result no messages sent to the team on this theme .

The next section looks at guideline A3.

8.3.3.3 Guideline A3: Keeping team members up to date with whom they are working with

Guideline number: A3

Guideline type: Keeping team members up to date with whom they are working with

Description:

- When there are any changes in circumstances, the entire team should be kept informed.
- For example, you are new to the team or you will be leaving the team.

The main rationale for producing guideline *A3* is to encourage the team to be kept informed on who they are working with. Such information does not have to be communicated only when the team is together face-to-face. However, face-to-face interactions are more personal than sending an e-mail message. Changes such as joining a team or leaving the team should be communicated to everyone. Also, when you are new it can be useful to introduce yourself, giving a brief summary of your background. When leaving the team it can be useful to let everyone know who to contact if any assistance is required, which you may have been providing.

Overall, this guideline and description was proposed by examining the contents of one textual chunk sent to the team, and looking at the application of states to the textual chunk. The contents of message 7 sent by Mary shows that a team member informed the team of the last day that she was working on the project. Supporting material from two discourse chunks was also used. That is *Review of the meeting agenda* and *Review of work package 1*. Both chunks showed evidence of the team being informed on who had left and who will be leaving the team. New roles due to a team member leaving from the project team were also communicated to the team.

Therefore, the goal of keeping team members up to date with whom they are working with was covered in one textual chunk and two discourse chunks. There was evidence of point 1 in the description *'When there are any changes in circumstances, the entire team should be kept informed'*. That is the team was informed that people had left the team and that people were leaving, and not just telling who those team members that they may have been working with. There was also some evidence of what was included in

point 2 in the description *'For example, you are new to the team or you will be leaving the team'*. That is informing the team that you are leaving. However, there was no evidence showing that you are new to the team.

There was no potential evidence of any of Cramton's problems when looking at keeping team members up to date with whom they are working with so there was no need to include anything additional in the proposed guidelines other than that already mentioned and what the researcher had included as that had not been observed in the case study.

When characterising this guideline there was evidence of states *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to a team and no discussion thread emerging from the original message in the e-mail message received. There was also supporting material from state *1*, agreement in discourse chunks from the face-to-face meetings.

The next section looks at guideline A4.

8.3.3.4 Guideline A4: Project glossary

Guideline number: A4

Guideline type: Project glossary

Description:

- Maintain a project glossary to ensure that everyone has the same understanding of terms, which are important during your interactions.
- To be effective the glossary must be kept updated.

The main rationale for producing guideline *A4* is to show how a glossary can be used to ensure that all team members have the same understanding on terms that are used. All key terms should be defined. Ideally the glossary should be introduced at the start of the team's interactions and new terms should be added as interactions continue.

Table 8.9 shows how this guideline was proposed, using sources of empirical data collected for this investigation.

Guideline number: A4

Guideline type: Project glossary

Description:

- Maintain a project glossary to ensure that everyone has the same understanding of terms, which are important during your interactions.
- To be effective the glossary must be kept updated.

Rationale:

Different terms can have different meanings to people; therefore it is important that everyone has the same understanding of the terms which are being used. A project glossary can help to achieve this. To be effective it should be introduced at the start of the project and new terms should be added as they are introduced.

Sources:

Source: Message *6* sent by *Charles* on Monday, March 25, 2002 12:14 PM (After 2nd meeting) From textual chunk Project Glossary. Appendix J

From: Charles
To: Project team
Subject: Project glossary
Date: Monday, March 25, 2002 12:14 PM

Dear partners,

During our meeting in Paris, we discovered that we were not sure we all meant the same thing by 'portal'. In order to prevent such misunderstandings in the future, it may be interesting to maintain a project glossary. The first version of this glossary is attached to this e-mail. Additions and comments are welcome.

Best regards,
Charles

Source: Message *16* sent by *Charles* on Thursday, June 20, 2002 2:08 PM (After 3rd meeting). From textual chunk *Glossary*. Appendix L

From: Charles
To: Project team
Subject: Project WP3 Requirements
Date: Thursday, June 20, 2002 2:08 PM

Dear partners,

...

I also use the opportunity to send you the current version of the glossary.

Regards,
Charles

Supporting materials:

- **Source**: 14/03/02 Discourse chunk: Work package 1 - overview of circulated report (2nd meeting) Appendix I

Mary: the main recommendations were to have accessible templates,
[Translator for Michael asks Hazel what is a template]
Mary: but, we have to make sure that the templates are accessible, and that the developments and the templates are accessible as well. And also, to include
[Hazel explains to the translator by whispering to him, what is a template]
Mary: all the actions that are included. And in terms of the accessibility of the course component, which are produced using authoring tools. We recommend that
[Can still hear Hazel whispering to Michael's translator what a template is]
Mary: the tools, which encourage the creation of text, if we want to includes images in other media in the course, which an authoring tool can do
[Translation to Michael what a template is]
[Hazel draws a diagram to show what a template is]
Mary: Also it can incorporate course content and instructions
[Can hear other people whispering as well]
Mary: in the environment. Also, the tool can incorporate guidelines, guidance on producing effective e-learning components that are accessible to all user. And they can also enable the synchronisation of all the accessibility. And, yeah
Charles: What do you mean by the accessible templates?
Mary: Right, these are
[Can hear Hazel talking about templates in the background as well]
Mary: I do not know if it will be helpful, but I mentioned to some of the other people here, that I have a trial version of one of the e-learning [pause] authoring tools, which has got a template as well. But, basically the templates are like forms for creating the tables
[Hazel nods her head] ***(Sub-state 1.1)***
Mary: which are like multichoice questions, or form filled questions, or different types of questions, and they are very much like visual, visual forms. And, you need to select the components from a combo box or different kinds of box, and as they are very much like on dragging or dropping or clicking on things with the mouse, that makes them inaccessible.
[Can hear whispering in the background]

- **Source**: 18/12/01 Discourse chunk: Short presentation by each of the partners on what work they have done in the last three months, Partner 2 on work package 2 (1st meeting) Appendix G

Annie: but since we are going to be the one to produce that prototype and we started to work 20 days ago, maybe, what I am saying is that the 6 month period for the requirements and something's like that, maybe should be before, before the prototype is made. You know, that first maybe the project should be planned, ok first you make a prototype, then we show it to the users, we see how the user react
Jack: yes that is what we are saying. ***(Sub-state 1.1)***
[Desmond nods his head] ***(Sub-state 1.1)***
Annie: yes. But the project is not planned that way. Because that should start in March. ***(Sub-state 1.1)***
[Jack says uh-huh.] ***(Sub-state 1.1)***
Annie: so its you know, it is a different organisation
Jack: what I
Lucy: The software to read the page of the link. We had the same problems, but we decided with two others from the university, which is working with us. They said they would give us a description of a imaginary tool. What it does and how it is. We went to the users and we asked them 'is it ok for you?' and they said no, we want it to be smaller, we want the software to work with any system with the barcodes, etc, etc. So we were able to give user requirements, which is not possible now in this project.
Lucy: So when we are talking about the prototype, it is not a real prototype that you will produce and give to the commission. It is something, which has some relationships with what we want to build up.
[Fabian, Jonathan, Annie, Kenneth nod their heads.] ***(Sub-state 1.1 x 4 people provides evidences)***
[Some others in the team say yes as well] ***(Sub-state 1.1)***
Hazel: but,
Annie: yes, yes ***(Sub-state 1.1)***
Hazel: but we would call that, if you just give people an imaginary description, we would call that a scenario. So, we can do it as a scenario. I actually think in the case, because this is web technology
[Annie says something to Christopher. Cannot hear what is said]
Hazel: I can imagine, mailing a prototype, a barcode reader, because this is a physical object, it is difficult to make one.
[Lucy nods her head] ***(Sub-state 1.1)***
Hazel: but because this is web technology, I think we could actually go one step further
[Ronnie nods his head] ***(Sub-state 1.1)***
Hazel: and to have something on the web, that illustrates the principles
[Charlotte nods her head] ***(Sub-state 1.1)***
Hazel: but until we have that vision of what it is the project is offering we cannot make the scenarios or the website
[Lucy, Charlotte and Kenneth agree] ***(Sub-state 1.1 x 3 people provides evidences)***
Lucy: A scenario plus something
Hazel: yes. ***(Sub-state 1.1)***
[Kenneth says huh.] ***(Sub-state 1.1)***
Hazel: but you know even if it were a scenario we could do it that way. But can this not be done in work package 2? Which has already started? Because that is where the plug in is being developed.
Ben: it is too early
Hazel: yes. ***(Sub-state 1.1)***
Ben: you need some testing material anyway for the plug in
Hazel: yes. ***(Sub-state 1.1)***
[Pause]

Evidence of Cramton's problems:

There was potential evidence of Cramton's problem difficulty in communicating the salience of information when proposing this guideline.
Summary:
Overall, observing what the team was currently doing derived the proposed guidelines and the descriptions. The researcher also included some of her own ideas.

Table 8.9: Linking sources of empirical data to guideline A4: Project glossary

Overall this guideline and description was proposed by examining the contents of two textual chunks and looking at the application of states to the textual chunks. In the first textual chunk *Project glossary,* message *6* sent by Charles shows that a glossary was introduced. In the second discourse chunk, *Glossary* a second version of the glossary was sent. Supporting material from two discourse chunks were also used. That is *Work package 1, overview of circulated report* and *Short presentation by each of the partners on what work they have done in the last three months – partner 2 on work packages 2 and 6.* Both chunks referred to terms. In one situation the term being used was explained. In another situation a team member was informed that they would use another term to describe what was being said.

Therefore, the goal of introducing a project glossary was covered in two textual chunks and two discourse chunks. There was evidence of point 1 in the description *'Maintain a project glossary to ensure that everyone has the same understanding of terms, which are important during your interactions'*. Here a team member saw the need to have a glossary and two versions were sent to the team. There was also evidence of point 2 in the description *'To be effective the glossary must be kept updated'*. That is a second version of the glossary was circulated to team members. During the face-to-face meetings the need for having a glossary was identified from the two discourse chunks which are referred to here.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in discourse chunk *Work package 1, overview of circulated report.* This was observed when the translator had to ask what was meant by the word template and Charles had to ask what was meant by the term an accessible template. In this situation the salience of the terms being used was higher for Mary than to other team members.

Therefore, this guideline was not only proposed looking at the evidence found in the textual and discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Difficulty in communicating the salience of information.

When characterising this guideline there was evidence of states *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from discourse chunks from the face-to-face meetings.

The next section looks at guideline A5.

8.3.3.5 Guideline A5: Informing with your plans before starting on work/giving a summary of what has been achieved

Guideline number: A5

Guideline type: Informing with your plans before starting on work/giving a summary of what has been achieved

Description:

- It is useful to inform team members of your intended plans in order to seek comments before conducting any work.
- Work should only be carried out once there is agreement from everyone.
- This ensures that no resources are wasted.
- It is also important to inform the team when plans have been actioned and any outcomes, which may be of interest.

The main rationale for producing guideline *A5* is to ensure that time is not spent on tasks and activities that do not meet the approval of other team members. Informing ahead of time any plans you may have can help to achieve what is proposed in this guideline. Offering summaries of what you have achieved can also be useful.

Overall, this guideline and description was proposed by examining the contents of eight textual chunks sent to the team, and looking at the application of states to the textual chunks. *Detailed workplan, Meeting in Paris, E-learning problems, Requirements for work package 1 and 3, Work package 3 task schedule, Work package 3 task description* and *Authoring tools* on two occasions. In seven situations comments were requested from the team. In five situations comments were sent. In four situations information was updated as a result of receiving comments. In two situations team members were seeking agreement for the work to be done. Lastly, in two situations team members were informed of what work must be done.

Therefore, the goal of informing with your plans before starting on work/giving a summary of what has been achieved was covered in eight textual chunks and from 19 e-mail messages. There was evidence of point 1 in the description *'It is useful to inform team members of your intended plans in order to seek comments before conducting any work'.* Comments were requested in message *2* sent by Hazel and *35* sent by Christopher after the first meeting. Messages *15* and *38* sent by Charles after the second meeting. Message *1* after the third meeting. Lastly, message *4* sent by Annie after the fourth meeting. Evidence of comments being sent as a result of sharing information was found in message *4* sent by Desmond after the first meeting. Also, messages *7 and 10* sent by Adam, message *12* sent by Kenneth and message *24* sent by Charles after the third meeting. Evidence of informing the team of intended plans was found in message *11* sent by Annie after the third meeting. Evidence of informing the team of your intentions was found in message *13* sent by Charles after the third meeting. Informing the team of what work will be done was also included here as it can give an opportunity for comments to be received. Evidence of this was found in messages *8* and *10* sent by Annie after the fourth meeting. There was also evidence of points 2 and 3 in the description *'Work should only be carried out once there is agreement from everyone. This ensures that no resources are wasted'.* Evidence of seeking agreement was found in messages *11* and *14* sent by Annie after the third meeting. There was also evidence of having comments sent as a result of seeking agreement from the team members. There was no real evidence of point 4 in the description *'It is also important to inform the team when plans have been actioned and any outcomes,*

which may be of interest'. However, the researcher included this as this is what she would expect to see in a similar situation.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in two textual chunks. *Detailed work plan for the next 3 months (typed up plan discussed during the second day of the face-to-face meeting)* and *Authoring tools*. In the first textual chunk, message *7* shows that the salience for Hazel adding in the changes proposed by Annie was higher to Annie than to Hazel as she did not understand why they were necessary. In the second discourse chunk this problem was observed in message *12* when Kenneth mentioned that the document that Annie sent in message *11* was not at the same level which was discussed by Geoff at the face-to-face meeting. In this situation the salience of what was included in the message was higher for Annie, the writer of the document than to its receivers.

Therefore, this guideline was not only proposed looking at the evidence found in the textual and discourse chunks, but also looking at what can be done in future to reduce Cramton's problem Difficulty in communicating the salience of information.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and a discussion thread emerging from the original message. States *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and no discussion thread emerging from the original message. Also states *4* and *6*, a message is sent to the group, but not following discussions which took place together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received.

The next section looks at guideline A6.

8.3.3.6 Guideline A6: Starting on work earlier than planned

Guideline number: A6

Guideline type: Starting on work earlier than planned

Description:
- If time and resources permit it can be useful for you to start on some work earlier on than planned, especially if it can provide salient information to other members of the team.

The main rationale for producing guideline *A6* is to show the importance of remaining flexible. Although timeplans and Gantt charts can be useful, sometimes efforts can be applied earlier than planned, due to a variety of reasons. Team members are therefore encouraged to remain flexible and when an opportunity to start on areas ahead of time become available they should be taken.

Overall, this guideline and description was proposed by examining the contents of four discourse chunks and supporting material from five e-mail messages sent to the team from one textual chunk, and looking at the application of states to the textual chunk. The discourse chunks were *Short presentation by each of the partners on what work they have done in the last 3 months – partner 2 on work package 2, Short presentation by each of the partners on what work they have done in the last 3 months – partner 7,*

Developing a plan of future work and *E-learning portal.* The textual chunk was *Project portal.* In three of the four discourse chunks a proposal was made to start on the work earlier than the scheduled plan. In one of the textual chunks, a technical team member said that the project was not well planned to allow technical development to begin sooner. They had very few people and training was still required. However, an agreement was reached that a scenario could be developed in that situation.

Therefore, the goal of starting on work earlier than planned was covered in four discourse chunks and five textual chunks. There was evidence of the description *'If time and resources permit it can be useful for you to start on some work earlier on than planned, especially if it can provide salient information to other members of the team'* in four discourse chunks and five e-mail messages showing that work on the portal had begun ahead of schedule.

There was no potential evidence of any of Cramton's problems when looking at starting on work earlier than planned so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message in the e-mail messages received. There was also evidence of supporting material from state *1*, agreement from discourse chunks from the face-to-face meetings.

The next section looks at guideline A7.

8.3.3.7 Guideline A7: Circulating draft documents

Guideline number: A7

Guideline type: Circulating draft documents

Description:

- You are encouraged to circulate copies of draft documents and to seek comments on them.
- Rather than saying as soon as possible, it is better to be specific and give an actual date, as team members may fail to recognise the urgency of a request.
- Circulating draft documents may result in final documents fulfilling the needs of the team, as comments would have been sought beforehand.

The main rationale for producing guideline *A7* is to remind team members of the importance of circulating draft documents. This guideline encourages you not to wait until a final document is produced before sharing it with the rest of the team. There are several benefits from sharing this work early with team members. Getting comments and finding out how you can make improvements are few reasons. Circulating draft documents can also act as a template. Team members become aware of what is required from them, in what format and the type of information that should be included.

Overall, this guideline and description was proposed by examining the contents of various textual chunks from messages sent after different meetings and looking at the application of states to the textual chunks. Following the first meeting there were 20 messages from five textual chunks. *Questionnaire on unmet learning needs, Protocol of evaluation for e-learning, Quarterly management report, E-learning* and

Report on problems encountered by visually impaired people on websites. Following the second meeting there were 26 messages from six textual chunks. *E-learning, Dissemination and use plan, Project portal, Authoring tool, Quarterly report, Special report* and *Review.* Following the third meeting there were 29 messages from nine textual chunks. *Authoring tools, Annex 1 updated, Revised work plan for work packages 1 and 5, Answers to the reviewers comments, Work package 2 – plug-in dossier, Manual for accessible design, Third quarterly report, Intention for dissemination* and *Project portal.* Following the fourth meeting there were five messages from four textual chunks. *Amendment number 3, Work package 3 task schedule, Fourth quarterly report* and *HTML tutorial.*

Following the first meeting there was evidence of requesting comments, contributions and suggestions with no deadlines. This was found six times in the messages. Sending comments and suggestions was found five times. Requesting comments, contributions and suggestions with deadlines was found four times. Intention to action things within a set deadline was found twice. Lastly, the following were all found one time each – informing that the document was sent, intention to action things with no set deadlines and no requested comments from draft material circulated to the team.

Following the second meeting there was evidence of sending comments, contributions and suggestions ten times. Requesting comments, contributions and suggestions with deadlines and no deadlines was found seven times each. Also, assuming approval of a draft document and intention to action things within set deadlines was found one time each.

Following the third meeting there was evidence of sending comments, contributions and suggestions 12 times. Requesting comments, contributions and suggestion with no set deadlines was found eight times. Requesting comments, contributions and suggestions was found six times. No comments requested was found twice and intention to action things within a set deadline was found once.

Following the fourth meeting there was evidence of no comments requested and requesting comments, contributions and suggestions with no set deadlines two times each. Also, requesting comments, contributions and suggestions with a set deadline was found once.

Therefore, the goal of circulating draft documents was covered in 80 e-mail messages from 26 textual chunks. There was evidence of point 1 in the description *'You are encouraged to circulated copies of draft documents and to seek comments on them'* in messages, *8, 20, 36* and *45* sent by Hazel, message *37* sent by Fabian, messages *42* and *43* sent by Mary and message *44* sent by Charles following the first meeting. Messages *5, 7, 9, 22, 24* and *52* sent by Fabian, message *8* sent by Adam and messages *23, 32* and *47* sent by Jack following the second meeting. Messages *1* and *16* sent by Charles, messages *3, 38* and *39* sent by Jack, messages *4, 22, 31, 35* and *42* sent by Mary, message *8* sent by Fabian, messages *11* and *28* sent by Annie and messages *31, 32, 35* and *42* and *32* sent by Conwayne following the third meeting. Lastly, messages *2* sent by Jack, messages *4* and *15* sent by Annie, message *20* sent by Fabian and message *23* sent by Morris following the fourth meeting. There was also evidence of point 2 in the description *'Rather than saying as soon as possible, it is better to be specific and give an actual date, as team members may fail to recognise the urgency of a request'* in message *20* sent by Hazel and messages *30* and *33* sent by Jack following the first meeting. Messages *5* and *22* sent by Fabian and message *34* sent by Jack following the second meeting. Messages *31* and *35* sent by Mary following the third

meeting. Lastly, message *4* sent by Annie following the fourth meeting. The description for point 3 *'Circulating draft documents may result in final documents fulfilling the needs of the team, as comments would* have *been sought beforehand'* was included by the researcher. She assumed this was why draft documents are sent, to seek comments, suggestions and contributions from team members.

There was potential evidence of Cramton's problems *Difficulty in communicating the salience of information* and *Difficulty in interpreting the meaning of silence.* The two problems were observed in *Quarterly management report* in message *34* sent by Jack after the first meeting when the salience for requesting contributions from partners was higher for Jack than to the rest of the team whom the request was made too. Difficulty in communicating the salience of information was found in textual chunk *Authoring tools* in message *12* sent by Kenneth where he reported that the document which was sent by Annie in message *11* was not at the same level of detail as was mentioned during the face-to-face meeting. In this situation the salience of what was included in this message was higher for Annie, the writer of the document, than to receivers of the document. For example, Kenneth, as he saw the need to send an e-mail on this issue. This problem was also found in textual chunk *Annex 1 updated* in message *9* sent by Hazel. In this message, Hazel said that she was disappointed to receive a new version of the draft with none of the proposed changes incorporated into it and no explanation why not. In this situation the salience for the changes was higher for those that proposed it than who the request was made too. Lastly, this problem was also found in textual chunk *Project portal* in message *50* sent by Adam where he informed the team that he had noticed confusion regarding the evaluation of the portal. In this situation it appears the salience of the evaluation was lower for Adam than the persons who were responsible in producing the plan.

Therefore, this guideline was not only proposed looking at the evidence found in the textual chunks, but also looking at what can be done in future to reduce Cramton's problems difficulty in communicating the salience of information and difficulty in interpreting the meaning of silence.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message. States *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message. Also, states *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received.

The next section looks at guideline A8.

8.3.3.8 Guideline A8: Summarising changes

Guideline number: A8

Guideline type: Summarising changes

Description:

- It is important to clearly show what is new since receiving the previous version. This helps to ensure that this new information is not missed.
- For ease of reading the points should be structured by the use of either numbers or bullets.

The main rationale for producing guideline *A8* is to show that simple steps can be taken to inform the team of what is new since receiving a previous version of a relevant piece of information. Summarising changes in the main body of the message can be useful to set the frame of mind of the reader. Using track-changing facilities can also be useful within the document itself. As good practice to ensure that information is not missed, bullet points and numbering is encouraged rather than writing one large paragraph, which may be difficult to read and to pick out key points.

Overall, this guideline and description was proposed by examining the contents of various textual chunks from messages sent after different meetings and looking at the application of states to the textual chunks. Following the first meeting there were four messages from three textual chunks. They were *Detailed work plan for the next 3 months (typed up plan discussed during the second day of the face-to-face meeting), Protocol of evaluation for e-learning* and *Quarterly management report.* Following the second meeting there were five messages from four textual chunks. They were *Dissemination and use plan, Requirements for work packages 1 and 3, Review* and *Second quarterly report.* Following the third meeting there were three messages from two textual chunks. They were *Authoring tools* and *Project e-learning requirements.* Following the fourth meeting there was one message from textual chunk *Work package 3 task schedule.*

Following the first meeting there was one evidence of having the intention to report back to the team in message *5* sent by Hazel. There was evidence of summarising amendments twice in message *7* sent by Hazel and message *37* sent by Fabian. There was also evidence of not summarising amendments twice in message *24* sent by Hazel and message *38* sent by Charles. Following the second meeting there was evidence of summarising the amendments four times in messages *9*, *47* and *52* sent by Fabian and message *49* sent by Jack. Following the third meeting there was evidence of summarising the amendments three times in messages *1* and *16* sent by Charles and message *22* sent by Mary. Following the fourth meeting there was evidence of not summarising the amendments once in message *15* sent by Annie.

Therefore, the goal of summarising changes was covered in 13 e-mail messages from ten textual chunks. There was evidence of point 1 in the description *'It is important to clearly show what is new since receiving the previous version. This helps to ensure that this new information is not missed'* in messages *7* and *37* sent by Fabian following the first meeting. Messages *9* and *52* sent by Fabian, *38* sent by Charles and messages *47* and *49* sent by Jack following the second meeting. Also, messages *1* and *16* sent by Charles and message *22* sent by Mary following the third meeting. No evidence of point 2 in the description was found *'For ease of reading the points should be structured by the use of either numbers of bullets'*. The researcher included this description as this would make the messages easier to read. However, message *7* sent by Fabian following the first meeting did show that paragraphs were used to explain each new point, to make it easier to read the information which was presented.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information.* This problem was observed in textual chunk *Detailed work plan for the next 3 months (typed up plan discussed during the second day of the face-to-face meeting)* in message *7* sent by Hazel when she mentioned that she added in the changes Annie proposed, but did not understand why they were

necessary. This message highlighted that the salience for requesting the change was higher to Annie than Hazel.

Therefore, this guideline was not only proposed looking at the evidence found in the textual chunks, adding information included by the researcher, but also looking at what can be done in future to reduce Cramton's problem difficulty in communicating the salience of information.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message in the e-mail messages received.

The next section looks at guideline A9.

8.3.3.9 Guideline A9: Sharing relevant information to members of the team

Guideline number: A9

Guideline type: Sharing relevant information to members of the team

Description:

- Any information, which would be of relevance to the team, should be circulated.
- This may include
  Any information, which was discussed during the meeting,
  New information, and
  Information, which was captured from media such as white/black board or flip chart. This is to ensure that team members have access to this information at a later date. If a copy was not made, you may not be able to refer back to it.

The main rationale for producing guideline *A9* is to inform the team of what types of information should be shared with members of the team. Team members are also encouraged to share relevant information and not keep it private. Comments can also be requested when information is shared.

Overall, this guideline and description was proposed by examining the contents of various textual chunks from messages sent after different meetings and looking at the application of states to the textual chunks. Following the first meeting there were four messages from four textual chunks. They were *Authoring tool accessibility guidelines, Detailed work plan for the next 3-months (typed up plan discussed during the second day of the face-to-face meeting), Dreamweaver* and *Conferences*. Following the second meeting there were seven messages from five textual chunks. They were *Conferences, E-learning, Browsers, Authoring tools and Java*. Following the third meeting there were six messages from four textual chunks. They were *Interesting information to share, Project speech recognition, Meeting information* and *Review of VoiceXML tools*. Following the fourth meeting there was one message from textual chunk *News*.

Therefore, the goal of sharing relevant information to members of the team was covered in 18 e-mail messages from 14 textual chunks. There was evidence of point 1 in the description *'Any information, which would be of relevance to the team, should be circulated'* in all of the messages which were sent to the team. This included sending relevant documents, conferences, demonstrations, resources and meeting information. There was also evidence of point 2 in the description *'This may include any information, which was discussed during the meeting, new information, and information, which was captured from*

media such as a white/black board or flip chart. This is to ensure that team members have access to this information at a later date. If a copy was not made, you may not be able to refer back to it' in message *2* sent by Hazel, from discourse chunk *Detailed work plan for the next 3-months (typed up plan discussed during the second day of the meeting)* after the first meeting. Here, the work plan that was developed on the white board was circulated to the team.

There was no potential evidence of any of Cramton's problems when looking at sharing relevant information to members of the team so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and a discussion thread emerging from the original message. States *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and no discussion thread emerging from the original message. States *4* and *5*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and a discussion thread emerging from the original message. Also, states *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received.

The next section looks at guideline A10.

8.3.3.10 Guideline A10: Sharing information with people outside of the team

Guideline number: A10

Guideline type: Sharing information with people outside of the team

Description:

- In teamwork, it is important that the team members show each other, what information will be shared with people outside of the team.

The main rationale for producing guideline *A10* is to show that e-mail should be used to inform team members of any information that will be shared outside of the team, when a face-to-face meeting does not take place. In teamwork information should only be shared if there is consent from all team members. As good practice it is important to ensure that information is shared before an event takes place, and not after. Using e-mail is one way of achieving this, by circulating information in advance using the mailing list.

Overall, this guideline and description was proposed by examining the contents of two textual chunks from messages sent after different meetings and looking at the application of states to the textual chunks. Following the third meeting, message *39* sent by Jack from textual chunk *Intention for dissemination* showed evidence of the project administrator informing the team that he would like to distribute information on the project at an event. Also, requesting comments and/or corrections on the material which was going to be distributed. Following the fourth meeting in message *7* sent by Mary from textual chunk *FTP update*, the copy of a paper which was going to be presented at a conference was sent. This guideline was also proposed looking at supporting material from three discourse chunks. In discourse chunks *Dissemination* and *Work package 6, dissemination, standardisation and exploitation* team

members commented that what is being shown outside of the team should be shown to the team first and that agreement should be sought from everyone. In discourse chunk *Work package 3 – development of the tool. Review of the work done since the last meeting*, the administrative co-ordinator said that the paper that is going to be presented by a team member will be sent to all team members. This paper was sent in message 7 sent by Mary following the fourth face-to-face meeting.

Therefore, the goal of sharing information with people outside of the team was covered in two textual chunks and three discourse chunks. There was evidence of the description *'In teamwork, it is important that the team members show each other, what information will be shared with people outside of the* team' in two of the three discourse chunks. There was also evidence that this was followed on in one of the two discourse chunks.

There was potential evidence of Cramton's problem *Difficulty in communicating the salience of information* in two situations in discourse chunk *Work package 6: dissemination, standardisation and exploitation.* In the first situation Paul raised the issue that they had already spoke about using the project to people outside of the project team, and the importance of showing information to team members before and not after it had been shown. A similar discussion had also taken place at the second face-to-face meeting. This situation suggests that the salience of team members being informed was higher for the team members who were not shown the information before, than to who was producing this information for people outside of the project team, to share news about the project. In the second situation this was observed when Kenneth was talking about the abstract. Paul reacted by saying this type of discussion was repeatedly being discussed.

Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problem difficulty in communicating the salience of information.

When characterising this guideline there was evidence of states *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement, state *2*, disagreement and state *5*, no growth in mutual understanding from discourse chunks from the face-to-face meetings.

The next section looks at guideline A11.

8.3.3.11 Guideline A11: Producing reports

Guideline number: A11

Guideline type: Producing reports

Description:

- One person should either volunteer or be nominated to receive information from all team members to produce a report, so that is can be structured to read like one person has produced it.
- It is important that everyone sends his or her contributions to this person in a timely manner.
- Circulating a template is one way of ensuring that everyone is familiar with its structure, and has knowledge of what information should be covered.

The main rationale for producing guideline *A11* is to show how e-mail can be used to produce reports, even when face-to-face interactions may not be possible. Following the few simple steps proposed in this guideline hope to achieve reports are produced in a timely manner. To maintain written consistency, one person should receive all contributions and to provide a structure to it and to check that is reads like one person has produced it. All contributions should be received when requested as well to ensure that a complete report is produced. Providing an explicit deadline can also be useful. Templates can also be useful to show team members what information is being requested from them, and how it should be presented. This can help information being received that meets your needs and in a format which can be easily transferred to produce a team document from a collection of individual documents.

Overall, this guideline and description was proposed by examining the contents of various textual chunks from messages sent after different meetings and looking at the application of states to the textual chunks. Following the first meeting there was evidence of Jack sending messages *30* and *36* on documents and Fabian sending message *37*. Following the second meeting there was evidence of Fabian sending messages *2*, *5*, *7*, *9*, *22*, *24* and *52* and Jack sending messages *23*, *32*, *47* and *49*. Following the third meeting there was evidence of Jack sending message *5* and Fabian sending message *8*. Lastly, following the fourth meeting there was evidence of Fabian sending message *20*. There was also supporting material from discourse chunk *Review of work package 6, dissemination activities* when there were discussions which showed that Elsie would take contributions from everyone to produce a report. Overall, mainly Jack and Fabian were receiving contributions and circulating draft documents to the team.

Therefore, the goal of producing reports was covered by various textual chunks and supporting material from one discourse chunk. There was evidence of the description in point 1 *'One person should either volunteer or be nominated to receive information from all team members to produce a report, so that it can be structured to read like one person has produced it'*. Following the first meeting there was evidence of Jack sending messages *30* and *36* on documents and Fabian sending message *37*. Following the second meeting there was evidence of Fabian sending messages *2, 5, 7, 9, 22, 24* and *52* and Jack sending messages *23, 32, 47* and *49*. Following the third meeting there was evidence of Jack sending message *3* and Fabian sending message *8*. Lastly, following the fourth meeting there was evidence of Fabian sending message *20*. The supporting material from discourse chunk *Review of work package 6: dissemination* activities also provided evidence for point 1. There was also evidence of the description in point 2 *'It is important that everyone sends his or her contributions to this person in a timely manner'*. Requests and reminders for outstanding contribution requests were found in messages *33* and *34* sent by Jack following the first face-to-face meeting. However, comments and contributions were received more times than the requests were made. This is evident from message *2* sent by Fabian, *4* sent by Jason, message *27* sent by Charles, message *28* sent by someone from partner 5, message *30* and *31* sent by Hazel and message *35* sent by Desmond following the second face-to-face meeting. Also, messages *6* sent by Jack and message *9* sent by Hazel after the third face-to-face meeting. There was also evidence of point 3 in the description *'Circulating a template is one way of ensuring that everyone is familiar with its structure, and has knowledge of what information should be covered'* in message *2* sent by Jack following the third face-to-face meeting.

There was potential evidence of Cramton's problems *Difficulty in communicating the salience of information* in three situations and *Difficulty in interpreting the meaning of silence* in one situation. In textual chunk *Quarterly management report*, in message *34* sent by Jack there was evidence that the salience for requesting contributions from partners was higher for Jack than to the rest of the project team, who the request was being made too. This situation is also used to explain potential evidence of the second problem, difficulty in interpreting the meaning of silence. In textual chunk *Publications*, message *4*, sent by Jason, informed Fabian that he must have missed the information that partner 9 had sent to them a few weeks ago. In this situation the salience of sending the information was higher for Jason, the sender, than the receiver, Fabian. In textual chunk *Annex 1 updated*, message *9*, sent by Hazel shows that she was disappointed to receive a new version of a draft with none of the proposed changes incorporated into it and no explanation why not. In this situation the salience for the changes to be made were higher for those that proposed it than who the request was being made too.
Therefore, this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problems difficulty in communicating the salience of information and difficulty in interpreting the meaning of silence.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the initial message that is sent to the team and a discussion thread emerging from the original message. Also, states *4* and *5*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and a discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement from discourse chunks from the face-to-face meeting.

The next section looks at guideline A12.

8.3.3.12 Guideline A12: Document formats

Guideline number: A12

Guideline type: Document formats

Description:
- To ensure that document formats, which are used for attachments, meet the needs of all team members.
- Document formats should already have been discussed during the meeting.

The main rationale for producing guideline *A12* is to remind the team of what was already discussed during the face-to-face meeting in guideline *D4 – discussing document formats*. Documents should only be sent as attachments in e-mail messages, if they meet the needs of team members. Document accessibility should not be assumed, team members should be asked if they have any specific requirements.

Overall, this guideline and description was proposed by examining the contents of two messages from two textual chunks after the third and fourth meeting and looking at the application of states to the textual chunks. The textual chunks were *Intention for dissemination* and *Update on annual review*. Following the third meeting there was evidence of Jack sending messages *12* and *39* with PDF attachments. There was also supporting material from discourse chunk *FTP site* where one team member brought to attention that you should not just have PDF documents as this type of formatting is not suitable for everyone.

Therefore, the goal of document formats was covered by two textual chunks and supporting material from one discourse chunk. There was evidence of point 1 in the description *'To ensure that document formats, which are used for attachments, meet the needs of all team members'* in the discourse chunk providing supporting material for this guideline. Those two messages show that what was discussed face-to-face was not followed up. There was also evidence of point 2 in the description *'Document formats should already have been discussed during the meeting'* in the supporting materials.

There was potential evidence of Cramton's problem *Failure to communicate contextual information* in one situation. In discourse chunk *FTP site*, it is not known if any of these issues which were raised were discussed at the kick-off meeting. Issues concerning the accessibility of document formats identified potential evidence of this problem. Those team members who had a problem viewing certain document formats should have raised this at the start of the teams interaction to ensure that everyone was receiving formats which were accessible to them.

Therefore, this guideline was not only proposed looking at the evidence found in the textual and discourse chunks, but also looking at what can be done in future to reduce Cramton's problem failure to communicate contextual information.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message. Also states *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement and state *2*, disagreement from discourse chunks from the face-to-face meeting.

The next section looks at guideline A13.

8.3.3.13 Guideline A13: Notification of new documents

Guideline number: A13

Guideline type: Notification of new documents

Description:

- Introduce a system to notify everyone that new documents have been added to the store (guideline number A17), which contain all relevant documentation for the team.

The main rationale for producing guideline *A13* is to encourage the team to ensure that a system is introduced to inform team members that a new document has been added to the central store (for example, FTP site). This is important, so that those team members know when documents are placed, as they may need to refer to them. If the team was not informed, members may not be aware that new documents have been added.

Overall, this guideline and description was proposed by examining the contents of sixteen messages from five textual chunks after each of the face-to-face meetings and looking at the application of states to the textual chunks. The textual chunks were *FTP site, Addition of new documents, FTP site, Chapter three,*

Project portal and *FTP update*. Following the first meeting there was evidence of Jack sending messages *3, 12* and *39*, Hazel sending messages *7, 8* and *9*, Fabian sending message *36* and Charlotte sending message *39* to notify everyone that a new document has been placed onto the store. Following the second meeting there was evidence of Fabian sending message *45* to inform the team of the new document which was added onto the store. Following the third meeting there was evidence of Jack sending message *2*, Fabian sending messages *17, 18* and *29* and Mary sending messages *35* and *42* to notify everyone that a new document has been placed onto the store. There was also supporting material from discourse chunk *FTP site* where the administrative co-ordinator said that he would e-mail everyone to let them know that a new document had been added onto the site. He also requested everyone to send their material to him to upload onto the site.

Therefore, the goal of providing notification of new documents was covered by five textual chunks and supporting material from one discourse chunk. There was evidence of the description *'Introduce a system to notify everyone that new documents have been added to the store (guideline number A17), which contain all relevant documentation for the team'* in 16 messages that were sent to the team.

There was no potential evidence of any of Cramton's problems when looking at notification of new documents so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message. Also, states *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message in the e-mail messages received.

The next section looks at guideline A14.

8.3.3.14 Guideline A14: Circulating meeting minutes

Guideline number: A14

Guideline type: Circulating meeting minutes

Description:

- Meeting minutes should be circulated soon after the meeting.
- Minutes should include constructive information and actions, clearly set with deadlines.
- If you hold a second meeting, any actions from the previous meeting should be referred too.
- It is also important to circulate minutes of any other meetings you may have, even if the whole team was not present, if it provides relevant information to other team members.

The main rationale for producing guideline *A14* is to remind the team of what was discussed during a face-to-face meeting and any actions which were decided. Although team members may have made individual notes, this is no substitute for not receiving any minutes. Minutes should be circulated as soon as possible after a meeting, whilst the meeting events are still clear in the minds of the team members. The format should be clear and detailed information should be included. Deadlines should also be

included as well for any actions that are set. When team members are dispersed it can be useful to send minutes of any relevant meetings you hold with other team members as well. Especially if those minutes can assist another team member in their work.

Overall, this guideline and description was proposed by examining the contents of six messages from two textual chunks after each of the face-to-face meetings and looking at the application of states to the textual chunks. The textual chunks were *Meeting minutes* and *FTP site*. Following the first meeting there was evidence of Jack sending message *12*, Christopher sending message *15*and Fabian sending message *17* with minutes of the meetings to the team. Following the second meeting there was no evidence of any minutes being sent to the team. Following the third meeting there was evidence of Fabian sending message *18* with the minutes. Also, Jack had sent message *2* which outlined his intentions to circulate the minutes by the end of that week. Following the fourth meeting there was no evidence of any minutes being sent to the team. There was also supporting material from discourse chunk *Meeting minutes* in two situations. One, where a team member brought to attention that it would be nice to be reminded of things discussed during the meeting in minutes. Two, when a team member reported that they would like to receive minutes as soon as possible after a meeting has taken place.

Therefore, the goal of circulating meeting minutes was covered by two textual chunks and supporting material from one discourse chunk. There was evidence of point 1 in the description *'Meeting minutes should be circulated soon after the meeting'* in message *12* sent by Jack, message *15* sent by Christopher, messages *17* and *19* sent by Annie and message *18* sent by Fabian that were sent to the team and also from the discourse chunk in situation number two. There was also evidence of point 2 in the description *'Minutes should include constructive information and actions, clearly set with deadlines'* in the discourse chunk which provided supporting material to this guideline description. There was no evidence of point 3 in the description *'If you hold a second meeting, any actions from the previous meeting should be referred too'*. However, this point was included by the researcher as she feels that it is something you would expect to see during a meeting. Lastly, there was evidence of point 4 in the description *'It is also important to circulate minutes of any other meetings you may have, even if the whole team was not present, if it provides relevant information to other team members'* in message *15* sent by Christopher and messages *17* and *19* sent by Annie which contained minutes for a technical meeting which was held and was circulated to the team.

There was no potential evidence of any of Cramton's problems when looking at circulating minutes so there was no need to include anything additional in the proposed guidelines other than that already mentioned and what the researcher included.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the group and a discussion thread emerging from the original message. Also, states *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the group and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement and state *2*, disagreement from a discourse chunk from the face-to-face meeting.

The next section looks at guideline A15.

8.3.3.15 Guideline A15: Informing on non-working periods

Guideline number: A15

Guideline type: Informing on non-working periods

Description:
- It is important to let team members know of
  Dates and
  Times
  That you will not be available, as this can help others to plan their work around you.

The main rationale for producing guideline *A15* is to introduce simple strategies to inform the team when you are not available. By informing the team when you are not available can be useful, as it allows preparations to be made in advance. It can also explain why you may not be answering any messages that are sent. It can be useful to inform the team of who can be contacted in your absence if there is an urgent matter as well.

Overall, this guideline and description was proposed by examining the contents of seven messages from two textual chunks after each of the face-to-face meetings and looking at the application of states to the textual chunks. The textual chunks were *Meeting minutes* and *FTP site*. Following the first meeting there was evidence of Hazel sending message *2*, informing the team that she would not be in contact with the team because of Christmas. Following the second meeting there was evidence of Fabian sending message *5* informing the team that Elsie is currently in Madrid and has no way of sending information to the team beforehand. Following the third meeting there was evidence of Mary sending message *4*, Jack sending message *19*, Morris sending message *30*, Ronnie sending message *36* and someone from partner 4 sending message *56* informing everyone of their availability. There was also supporting material from a textual and discourse chunk. First message *30* sent by Hazel from textual chunk *Special report* after the second meeting shows that it would have been useful when a team member informed everyone that they were behind on their work due to various reasons. In this situation it would have been beneficial if the team was informed of this situation beforehand, helping to explain why no contributions were being received from them. Also, from discourse chunk, *Review of work package 6, dissemination activities*, when a team member reported as they were going to Madrid the following week, to send information to their Hotmail account so work can be done during the weekend. In this situation it was useful to inform team members of their availability and own time that was going to be spent to work on the document.

Therefore, the goal of informing on non-working periods was covered by two textual chunks and supporting material from one discourse chunk. There was evidence of the description *'It is important to let team members know of dates and times that you will not be available, as this can help others to plan their work around you'* in all the messages sent to the team and also from the supporting material.

There was no potential evidence of any of Cramton's problems when looking at informing on non-working periods so there was no need to include anything additional in the proposed guidelines other than that already mentioned and what the researcher included.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message. States *4* and *5*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meetings and a discussion thread emerging from the original message. Also, states *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meetings and no discussion thread emerging from the original message in the e-mail messages received.

The next section looks at guideline A16.

8.3.3.16 Guideline A16: Next meeting

Guideline number: A16

Guideline type: Next meeting

Description:

- The team should be reminded of what date has been chosen for the next meeting.
- Arrangements should be made if a brief meeting with some of the team members is required before the actual meeting.
- If anyone knows in advance that they cannot make it on the day of the chosen meeting, the team should be informed.
- If any changes are necessary in order for you to present your work, the team should be made aware.
- Arrangements should be made for all team members to stay at the same hotel, if an overnight stay is required.
- Details of the venue for the meeting should be circulated in advance.

The main rationale for producing guideline *A16* is to remind the team of what date was selected to hold the next meeting. This can be useful when team members may have had to leave before this point was discussed during the face-to-face meeting. Team members are also encouraged to hold an informal meeting when there are any points that need discussion before the actual meeting. This can be important when team members are dispersed. The team should be informed if you cannot attend the meeting as well, or if there are any constraints that you are aware of which will affect your participation during the meeting. Where possible, team members are encouraged to stay at the same hotel if an over-night stay is required to attend the meeting. Details on the meeting venue should also be circulated, so team members know where to arrive for the meeting. Although this information would have been included in the agenda, it is useful to include it separately as well as a reminder in the main body of the e-mail message that is sent to the team.

Overall, this guideline and description was proposed by examining the contents of 19 messages from eight textual chunks after each of the face-to-face meetings and looking at the application of states to the textual chunks. The textual chunks were *Next meeting, Paris meeting (booking accommodation for the meeting), Paris meeting – draft agenda, Next meeting date, Agenda for meeting, Meeting information, Draft agenda for the meeting* and *Next meeting*. There was also supporting material from five discourse chunks.

Following the first meeting, the following themes were identified from the textual chunks. *Informing of meeting date*, message *2* sent by Hazel, *booking information for accommodation*, message *29* sent by

Lucy, *planning a pre-meeting*, message *35* sent by Christopher, *address of meeting venue*, message *41 sent by Jack* and *address of hotel,* message *41 sent by Jack.* Following meeting two, the following themes were identified from the textual chunks. *Informing of not attending a meeting*, messages *20* sent by Jack, messages *7* and *9* sent by Fabian, *establishing a new meeting date*, messages *20* and *25* sent by Jack, *information for accommodation*, messages *25, 33* and *39* sent by Jack, *reactions to not attending* the *meeting*, messages *36* and *37* sent by Hazel and from partner 5, *confirmation of final meeting dates*, message *39 sent by Jack*, *address of meeting venue*, message *53* sent by Jack and *address of hotel*, message *53* sent by Jack. Following meeting three, the following themes were identified from the textual chunks. *Relevant travel information*, message *37* sent by Charles and *informing of changes to the meeting* due to not being able to attend, message *54* sent by Jack. Following meeting four, the following themes were identified from the textual chunks. *Dates of next meeting*, message *16* sent by Jack, *hotel information*, message *18* sent by Jack, *address of meeting venue*, message *19* sent by Jack and *address of hotel*, message *19* sent by Jack.

Following the first meeting in discourse chunk *Next meeting date* a team member said he would like to know the date of the next meeting. Dates were agreed and another team member said that they would send an e-mail to inform everyone of that date.

Following the second meeting in discourse chunk *Discussion on choosing a date for the next consortium meeting*, the dates for the next meeting were agreed. In discourse chunk *Any other business*, a team member said it would be better for everyone to stay at the same place so informal contact could take place in their own time. A suggestion was also made that for the next meeting everyone stays at the same place. Everyone agreed that they preferred somewhere close to the venue of the meeting as well.

Following the third meeting in discourse chunk *Date of next meeting*, dates were selected, however, all team members could not be sure of their availability for those dates.

Following the fourth meeting in discourse chunk *Date for next meeting*, there were talks on the next meeting date. However, as everyone was not present at this meeting, possible dates were suggested, but not all team members could be sure of their availability for those dates.

Therefore, the goal of meeting dates was covered by eight textual chunks and supporting material from five discourse chunks. There was evidence of point 1 in the description *'The team should be reminded of what date has been chosen for the next meeting'* in message *2* sent by Hazel after the first meeting, message *39* sent by Jack after the second meeting and message *16* sent by Jack after the fourth meeting. Evidence of this point was also found in discourse chunk *Next meeting date* from the first meeting. There was evidence of the point 2 in the description *'Arrangements should be made if a brief meeting with some of the team members if required before the actual meeting'* in message *35* sent by Christopher after the first meeting. There was evidence of point 3 in the description *'If anyone knows in advance that they cannot make it on the day of the chosen meeting, the team should be informed'* in messages *20* and *39* sent by Jack and message 37 sent by partner 5 following the first meeting. There was evidence of point 4 in the description *'If any changes are necessary in order for you to present your work, the team should be made aware'* in message *54* sent by Jack after the third meeting. There was evidence of point 5 in the description *'Arrangements should be made for all team members to stay at the same hotel, if an overnight*

stay is required' in discourse chunk *Any other business* from the second meeting. There was also evidence from message *29* sent by Lucy from the first meeting. Also, in messages *25*, *33* and *39* sent by Jack from the second meeting and message *18* sent by Jack from the fourth meeting. Lastly, there was evidence of the final point in the description, *'Details of the venue for the meeting should be circulated in advance'* in message *5* sent by Hazel from after the first meeting, message *53* sent by Jack from after the second meeting and message *19* sent by Jack from after the fourth meeting. There was no evidence of this point in the third meeting.

There was potential evidence of Cramton's problems *Difficulty in communicating the salience of information* in textual chunk, *Next meeting date* in message 36 sent by someone at partner 5 and message *37* sent by Hazel after the second face-to-face meeting. In both messages it said that it would be difficult to attend on 6th and 7th June. However, there were no problems with attending 3rd and 4th June. In those messages the salience for selecting another date was higher for Jack than Hazel and Lucy.

Therefore, this guideline was not only proposed looking at the evidence found in the textual chunks and discourse chunks, but also looking at what can be done in future to reduce Cramton's problem difficulty in communicating the salience of information.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message. States *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message. States *4* and *5*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and a discussion thread emerging from the original message. Also, states *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement from a discourse chunk from the face-to-face meeting.

The next section looks at guideline A17.

8.3.3.17 Guideline A17: Encouraging self-testing

Guideline number: A17

Guideline type: Encouraging self-testing

Description:

- Self-testing should not just take place when team members are together at a meeting.
- You are encouraged to continue self-testing by
  Sending URL's for WebPages, and
  Programs (either developed or found).

The main rationale for producing guideline *A17* is to encourage and promote self-testing away from the face-to-face meeting. The importance of introducing self-testing was already discussed in guideline *D17*. Self-testing in this context can be achieved by interacting with websites and using prototypes which have been developed. There are no time constraints when self-testing is away from the face-to-face meetings. As stated in D17 when an opportunity to self-test becomes available it should be taken.

Overall, this guideline and description was proposed by examining the contents of six messages from six textual chunks after each of the face-to-face meetings and looking at the application of states to the textual chunks. The textual chunks were *Dreamweaver, Project portal, Authoring tools, Browsers, Update on the project portal* and *HTML tutorial.* There was also supporting material from five discourse chunks. *Change to the agenda, Presentation of a demo, Work package 1, overview of circulated report, Review of work by work packages 2/3/4* and Work package 3 – development of the tool. Review of work done since the last meeting.

Sending information which may be of interest with URLs was included in message *22* sent by Hazel after the first meeting and messages *13* and *14* sent by Mary after the second meeting. Placing work online so that you can test it was included in message *8* sent by Adam after the second meeting. Also, explanation of how to work the information placed for self-testing was found in message *6* sent by Adam after the fourth meeting.

Therefore the goal of encouraging self-testing was covered by six textual chunks and supporting material from five discourse chunks. There was evidence of point 1 in the description *'Self-testing should not just take place when team members are together at a meeting'* in the five messages which were sent following the face-to-face meetings. At the face-to-face meetings there was evidence of some team members wanting to self-test the technology which had been demonstrated to them, asking for web addresses to self test what is being demonstrated, downloading trials from the website to see where the added value is, downloading tools and accessing the prototype which is being developed. There was also evidence of point 2 in the description *'You are encouraged to continue self-testing by sending URL's for webpages, and programs (either developed or found)'* in the five messages which were sent to the team.

There was no potential evidence of any of Cramton's problems when looking at encouraging self-testing so there was no need to include anything additional in the proposed guidelines other than that already mentioned.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the

team and a discussion thread emerging from the original message. States *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message. States *4* and *5*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and a discussion thread emerging from the original message. Also, states *4* and *6*, a message is sent to the group, but not following discussions which took place when together at the face-to-face meeting and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement from a discourse chunk from the face-to-face meeting.

The next section looks at guideline A18.

8.3.3.18 Guideline A18: Storing relevant documentation

Guideline number: A18

Guideline type: Storing relevant documentation

Description:

- All presentations, which are given during the meeting and any other documentation of interest should be included for future reference in a place, which can store all relevant documentation in one place.
- The store should be available to everyone and have a meaningful structure and not just a linear list.
- This can help team members to correctly access the documents that they are seeking, and not having to guess where the information may be found.

The main rationale for produce guideline *A18* is to establish a central store, which can be used to place all relevant documents, which are of interest to the team. An FTP site is one simple solution. A central store is particularly important when the team is dispersed and everyone may not have access to the same documents, and to borrow them from physical spaces such as filing cabinets. Presentations from face-to-face meetings are also recommended to be placed onto the site, as there may be team members who would like to refer back to them at a later date. A central store is recommended as attachments can be too large to send by e-mail and problems can be experienced sending messages. To access the central store, the information must be organised in a logical way.

Overall, this guideline and description was proposed by examining the contents of 16 messages from four textual chunks after each of the face-to-face meetings and looking at the application of states to the textual chunks. The textual chunks were *FTP site – addition of new documents, Review, FTP site* and *FTP update.* There was also supporting material from three themes. Theme *FTP contents* with discourse chunks *Overview of market for access technology, FTP site, Developing a plan of future work, Review of work package 2, Work package 1, e-learning presentation, Meeting minutes, Project brochure* and *Work package 3 - development of the tool. Review since the last meeting.* Theme *FTP structure* with discourse chunk *FTP site.* Lastly, theme *FTP process* with discourse chunks *FTP site* from two separate meetings.

Therefore, the goal of storing relevant documentation was covered by four textual chunks and supporting material from eight discourse chunks. There was evidence of point 1 in the description *'All presentations, which are given during the meeting and any other documentation of interest should be included for future reference in a place, which can store all relevant documentation in one place'* in all

the messages which were sent following the face-to-face meetings. On this point there was also evidence from supporting material from the following discourse chunks. That is *Overview of the market for access technology, FTP site, Developing a plan of future work, Review of work package 2, Work package 1, e-learning presentation, Meeting minutes* and *Work package 3 – development of the tool. Review since the last meeting.* There was evidence of point 2 in the description *'The store should be available to everyone and have a meaningful structure and not just a linear list'.* The first point, being available to everyone was proposed looking at discourse chunk *Meeting minutes*, where the administrative co-ordinator said that the reason that maybe one of the team members did not receive the minutes was because they were not on the list. This shows the importance of including everyone on the list so that they can receive updates on the store. The second point looking at the structure of the store was developed looking at the theme *FTP structure* and discourse chunk *FTP site.* In this discourse chunk one team member reported that numbering documents in the site was not practical. A proposal was made to include different sub-directories rather then just one directory. Otherwise it can be difficult to find the items. There was evidence of using different directories in the messages sent following that meeting. That is messages *3 and 12* sent by Jack and messages *7, 8, 9* sent by Hazel following the first meeting and message *21* sent by Jack following the third meeting. There was also evidence of point 3 in the *description 'This can help team members to correctly access the documents that they are seeking, and not having to guess where the information can be found'.* This point is also related to point 2 in the description.

There was potential evidence of Cramton's problems *Unevenly distributed information, Difficulty in interpreting the salience of information* and *Difficulty in interpreting the meaning of silence.* The first problems was observed in discourse chunk *Meeting minutes*, where one of the team members did not receive the minutes for the meeting as he did not seem to be on the mailing list. The second and third problems were observed in discourse chunk, *FTP site.* Both problems were observed when one team member informed the project co-ordinator that information he had sent to be included on the site had not been. In this situation the salience for the project co-ordinator putting the documents onto the site was higher for the requester than the project co-ordinator. In the second problem, the person making the request did not know the reasons for the silence and not seeing the documents on the store, so he placed them on there himself.

Therefore this guideline was not only proposed looking at the evidence found in the discourse chunks, but also looking at what can be done in future to reduce Cramton's problems unevenly distributed information, difficulty in interpreting the salience of information and difficulty in interpreting the meaning of silence.

When characterising this guideline there was evidence of states *1* and *2*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and a discussion thread emerging from the original message. Also, states *1* and *3*, a message is sent to the entire group, following a face-to-face discussion. This state focuses on the original message that is sent to the team and no discussion thread emerging from the original message in the e-mail messages received. There was also supporting material from state *1*, agreement and state *2*, disagreement from the discourse chunks from the face-to-face meetings.

The next section concludes this chapter.

6.4 Conclusion

This chapter has presented 38 guidelines, which have been proposed to promote mutual understanding in multidisciplinary teamwork, using the four categories or aspects by which team members can update their mutual understanding (Mulder, 2000). The guidelines were separated into face-to-face and e-mail interactions to reflect the two forms of interactions which were the focus of this investigation. The application of states and sub-states and observation of problems and actions which could be taken to lower those problems were included into the proposed guidelines. Guidelines were aimed specifically at team members and are not just targeted towards the team manager or leader. The researcher believes that it is important in teamwork to allow team members to contribute towards activities which can increase mutual understanding in the team, and not to just the manager or leader take charge. Many of the guidelines, which were proposed, were not novel. However, each was produced based on the empirical data collected for this investigation and applying the methods characterised in chapter 3 to monitor the evolution of mutual understanding.

Chapter 9 presents the result of the validation exercise, performed using a separate multidisciplinary team.

Chapter 9

Guideline validation

Chapter 9: Guideline validation

38 guidelines proposed in chapter 6 to promote mutual understanding during team interactions in multidisciplinary teamwork were derived from observing and monitoring how a multidisciplinary team who had a common goal worked together. The evolution of mutual understanding was examined on a moment-by-moment basis, by monitoring and applying the characterised states and sub-states from chapter 3, to empirical data collected for this investigation. Guidelines were proposed by gaining an insight into how the observed European project team interacted with its team members. To validate those guidelines a second multidisciplinary team was selected, which was developing a course at an academic institution based in England. Results from this exercise has shown that a successful team that has members who have worked together before already, automatically put into practice many of the things that have been included in the proposed guidelines. This point was reported by team members and was witnessed by the researcher. This chapter shows that the guidelines that were proposed in the previous chapter on the case study for this investigation have validity outside the original team. Overall, the guidelines were generally perceived as having general usefulness, with very clear descriptions. The validation exercise and the results are reported in this chapter.

9.1 Overview of the validation exercise

To validate the proposed guidelines a multidisciplinary team, which communicates with its team members via face-to-face meetings and e-mail messages, was selected to participate in this validation exercise. The team was formed approximately two years ago. This second team was selected as a control group as it included team members who had worked together in the past. To allow team members to become familiar with the 38 guidelines, they were individually sent to each member by e-mail in a PowerPoint attachment before they attended their face-to-face meeting. Team members were requested to read the guidelines before attending this meeting, and to focus their attention on guidelines D1-D17, as they were aimed specifically at face-to-face interactions. The re-definition for mutual understanding proposed in chapter 3 and the re-definitions of ingredients which were identified as necessary for looking at mutual understanding: common ground, grounding, mutual belief and repairs were also sent by e-mail to allow team members to situate their understanding in the context of this investigation. Two face-to-face meetings were attended as a silent observer to validate the guidelines. The meetings were audio recorded and hand written notes and seating plans were produced. Team members also completed a questionnaire after each meeting. In addition, the researcher was copied to all e-mail messages sent to the team following their first face-to-face meeting.

At the first meeting, each team member was issued with a pack of A5 cards, which had the guidelines printed on there. For ease of identification, two different coloured cards were used to represent the two different modes of interactions, which were the focus of this investigation, face-to-face and e-mail. The cards were produced to remind team members what was included in each guideline, so that they did not have to memorise what was written for each guideline and its associated description. The team was also informed that the cards could be referred to at anytime during the meeting. Each team member was also issued with a log sheet so that they could record the guidelines that they had put into practice or had observed another team member put into practice during the meeting. Appendix Q has a copy of the log

sheet. At the end of the meeting a questionnaire was distributed to gather team members views on the proposed guidelines. A copy of the questionnaire asked at the end of the first meeting can be found in appendix R. Team members were also reminded to include the researcher on any messages that were sent to the team, and to bring their pack of cards to the next meeting. In addition, a second log sheet was issued so that team members could record the guidelines that they had put to practice or had observed another member of the team put to practice when they were communicating together using e-mail. Appendix S has a copy of the log sheet. Appendix T includes a copy of the questionnaire team members were requested to complete at the end of the second meeting.

The next sections includes a discussion of alternative evaluation methods which were considered by the researcher, before deciding to adopt the method described in this chapter.

9.1.1 Discussion of alternative evaluation methods considered

This section provides a discussion on alternative evaluation methods that might have been applied but were not, in order to provide the reader with reasons why the specific evaluation approach was adopted. Four alternatives were considered and each is examined in turn.

Contacting teamwork experts is examined first.

9.1.1.1 Contacting team work experts

The researcher had considered contacting experts in teamwork for their comment on the guidelines based on the empirical data, which had been proposed by the researcher. However, as the purpose of the validation was to see if a real team could apply the guidelines, the researcher did not consider this. If the researcher had been looking to consider the novelty of the guidelines, contacting experts in teamwork would have contributed significantly by taking into account their insights, provided from their areas of expertise. Also, the researcher did not contact experts in teamwork in addition to performing the validation described in this chapter, as time did not permit this. In addition, if experts in teamwork had been asked it would have required them to provide feedback and comments in a short period of time and this may not have been possible.

Repeating the process of proposing the guidelines is examined next.

9.1.1.2 Finding another team to repeat the process

In the validation method which was considered, the researcher was not looking to repeat the process which was undertaken to produce the guidelines described in chapter 8. Time did not permit this. As the purpose of the validation was to find out how useable the proposed guidelines were, this did not cause a problem. However, the researcher did decide to audio record the face-to-face meetings so that it could be referred back to when reporting on the results in case the need arised. As the purpose of the validation was not to see if the evidences reported in appendix O could also be found in another team, this also did not cause a problem. The researcher was also relying on team members from the validation project team to answer questions in the questionnaire as honestly and as completely as possible.

Asking the project team that was the case study for this investigation to use and/or comment on the guidelines proposed is examined next.

9.1.1.3 Asking the European research project team which was the case study for this investigation

The researcher decided that the project team which was the case study for this investigation could not be asked to use the guidelines which had been proposed in their next face-to-face meeting and their interactions after that meeting. This is because the next meeting date did not fit into the time period the researcher was looking at to conduct the validation. Time did not permit to wait for the project's next face-to-face meeting to take place. The researcher did however consider asking this team to provide a retrospective account of the proposed guidelines and to comment on their perceived usefulness. However, the researcher felt that team members may not have been co-operative in this area as this was not included in the informed consent form, describing the activities that team members from the project team would be involved in. Also, the researcher did not have time to conduct telephone interviews for those team members who preferred to give their answers over the telephone rather than in writing. Also, asking a selected few people may have provided biased results, so no one from this project team was asked their comments on the proposed guidelines. Instead, validation was performed using a separate project team.

Selecting an identical project team is examined next.

9.1.1.4 Selecting an identical project team

The researcher was aware that the team that participated in the validation exercise might not be identical in nature to the team which was used to produce the proposed guidelines. Finding an identical team would have proved difficult, especially in the time period which was available to conduct the validation. Therefore, a team was chosen for this validation exercise which showed both similarities and differences against the original team from where the guidelines had been proposed.

Now examined are items which were considered for the validation exercise but were not used.

9.1.1.5 Items considered for the validation exercise but not used

The researcher considered during the meeting to have time available where team members could reflect on the guidelines that they had put into practice and observed other team members put into practice. This would have encouraged team members to share what was recorded on their log sheet shown in appendix Q. However, the researcher was aware that by introducing this process, it would increase the length of the meeting time. Also, it may have affected the flow and structure of the meeting. Lastly, team members may have been reluctant to share this information publicly in front of other team members. Although team members could have been asked this information during coffee breaks, the researcher decided not to do this as coffee breaks are intended as a 'break' from work. Therefore, the researcher requested each team member to use the log to remind them of what was observed during the meeting, and to be used when completing the questionnaire. By asking them to do this did not result in the need to contact team members individually, to find out what was written on their log sheets.

The next section looks at obtaining informed consent from team members.

9.1.2 Informed consent

Each team member was given an informed consent form to read and sign. The form included details on the purpose of the validation exercise and the procedures which were going to be used. There was no risk or discomfort associated with their participation in this exercise. Team members were also informed that their identities and data would remain confidential. For confidentiality reasons, pseudo names belonging to the same gender are used. Each team member and the assessor completed the informed consent form and signed it. A copy of this informed consent form can be found in appendix P.

The next section looks at in more detail the team that was selected to participate in this validation exercise.

9.1.3 Project team

A multidisciplinary project team, with five members that is developing a course belonging to an established academic institution in England was used to validate the guidelines. Section 9.1 already identified that this team was selected as a control group. The criteria which was used to select an appropriate team for this exercise included multidisciplinary, communicates face-to-face and by e-mail, has worked together with some of its members before and has been working together for a relatively long period of time. This team was selected to reveal which of the proposed guidelines a successful team that includes members that have been working together for a long time already puts into practice. This is because you cannot guarantee that what the team puts to practice has resulted from reading the proposed guidelines or whether it was part of what they already do when working in a team. Thus, the purpose of this validation is to identify those guidelines that team members from this control group put into practice, when interacting together as a group.

A different composition team was used for the validation exercise as a comparable team to the original case study was not found. As reported in chapter 4, the case study team included team members with a visual disability and from different nationalities. Tables 9.1 and 9.2 compare the two teams. Team one is the case study, which was used to gain an insight into how team members achieve mutual understanding, and team two is the one that participated in this validation exercise. Similarities between the two teams are examined first by identifying seven aspects which were common to both teams.

Aspect	Similarities
Multidisciplinary project teams	Both teams were multidisciplinary project teams.
Language used	English was used as the main language to communicate with the team at face-to-face meetings and when sending e-mail messages to the team.
Interaction modes	Both teams had face-to-face meetings and sent and received e-mail messages to the team in between their face-to-face meetings.
Media storage	A central store, such as file transfer protocol was used to gather documents of shared interest to the team.
Team members	A minimum of one member had joined the team after it had formed and had already been working together.
Using an agenda	An agenda was circulated before the meeting. It was also referred to during the meeting to retain the focus.
Knowing one another and having worked together in the past	All team members did not know one another before the start of the teams interactions together. In addition, everyone in this team had not worked together before.

Table 9.1: Similarities between the two teams

Table 9.2 presents the differences between the two teams. Like table 9.1, to identify the differences aspects were defined. Thirteen aspects have been identified.

Aspect	Team One Differences	Team Two Differences
Size	Approximately 25 members.	Five members.
Loss of team members	Some team members had left the team before the project was completed.	No team member had left since data was being collected from that team.
Meeting duration	Usually 1 ½ to 2 days.	A half day meeting. generally between 3-4 hours.
Location	Team members belonged to six European Union States, from nine partner organisations. The team was dispersed, therefore had minimal opportunity for informal face-to-face interactions.	Team was collocated at an academic institution based in England. Team members were based in the same faculty and had opportunities for informal face-to-face meetings and discussions.
Partners	Nine partners involved in the project.	No partners outside the academic institution was involved.
Project	European research project designing a technical prototype.	A project which is producing a course by a development team.
Demonstrations	The prototypes as they were shown to the team, offering demonstrations of their functionality.	No physical demonstrations were shown at the meeting.
Technological outputs	Yes.	No.
Control group	No.	Yes.
Meeting schedule	One meeting every 3–months.	Second meeting was held within a month of the first. Abigail, the assessor attended the second meeting.
Receiving meeting minutes	Minutes were not received after each meeting.	Minutes were received after all meetings.
Team member disabilities	Visually impaired and blind team members.	All sighted team members.
Language used	English was not the first language for all team members.	English was the first language of all team members.

Table 9.2 Differences between the two teams

The list of differences between the two teams in table 9.2, far outweighs the similarities between the two teams, table 9.1.

The team that was selected to participate in this exercise has been working together for at least two years, which is a relatively long time in the context of teamwork activities. In the past they had worked together on a separate course. Diane and Holly have worked together on and off since 1992. Diane and Martin worked on a related course in 1998. Diane became a full time member of a new course in 1999, after transferring departments. Martin was the chair, in this new course. Julie joined this course at the end of 2001 and Holly joined the course in 2002, and took over as the chair. The newest member of this team is Michelle who joined the faculty and team in 2004.

The same team members attended both meetings. In addition, the second meeting also included an assessor. Due to time constraints the assessor was not asked to reveal if any of the proposed guidelines were either put into practice by her, or were witnessed put into practice by another team member. Thus, the results, which are presented in this chapter, are based on information from Holly, Judith, Martin, Diane and Michelle. Those five people were responsible for designing a course for students.

The next section looks at the make up of the multidisciplinary team.

9.1.3.1 Multidisciplinary team

To identify the multidisciplinary nature of this team, each team member was asked about their educational qualifications and titles for all degree levels and diplomas that had been studied or were being studied in the first questionnaire that they were asked to complete. To characterise the multidisciplinary nature of this team, the list of eight disciplines included in the questionnaire circulated to the first project team was used. A copy of this questionnaire can be found in appendix R. Table 9.3 presents the eight disciplines. Team members were encouraged to include their own discipline to the list, in table 9.3, if they felt that it did not characterise what they had studied or were studying.

Arts (e.g. Journalism, Music, Art...)
Business and Management (e.g. Actuarial Science, Business Studies, Banking...)
Computing (e.g. Computer Science, Software Engineering, Information Systems...)
Engineering (e.g. Aeronautical, Air Transport, Civil, Electrical and Electronic...)
Social Sciences (e.g. Economics, Psychology, Sociology, Economics...)
Science (e.g. Biological Sciences, Chemistry, Physics, Mathematics...)
Health Sciences (e.g. Nursing, Medicine, Midwifery, Dentistry, Pharmacy...)
Law

Table 9.3 Categories of eight disciplines and subject areas

In this team, all five members had completed an Undergraduate degree and four had completed degrees at both Masters and PhD level. One team member had also completed a postgraduate teaching certificate. Table 9.4 for each team member shows the title, level and discipline for each degree studied.

Team member	Title	Level	Discipline
Holly	Computer Science	PhD	Computing
	Computer Science	MSc	Computing
	Mathematics	BSc Hons	Science
	Postgraduate Certificate in Higher Education Teaching	PGCTLHE certificate	Education
Julie	Algebra	PhD	Science
	Pure Mathematics	MSc	Science
	Mathematics	BSc	Science
Martin	Computer Science	PhD	Computing
	MBA	Masters	Business
	Computer Science	MSc	Computing
	English and Mathematics	BA	Science and Arts
Diane	Computing	PhD	Computing
	Artificial Intelligence Systems	MSc	Computing
	Psychology and Computing	BA Hons	Social Sciences
Michelle	English with History	BA Hons	Arts

Table 9.4: Disciplinary background of team members

Table 9.4 highlights that the Science discipline was the most popular for Undergraduate degrees and the Computing discipline for MSc and PhD degrees. This table also brings to attention that disciplines do not have to belong to just one subject area. Disciplines can also be combined as educational establishments offer integrated degree courses.

Overall, this team has qualifications in the following seven disciplines: Computing, Science, Education, Business, Science and Arts, Social Sciences and Arts. Education was as an additional discipline included to the list in table 9.3, by Holly.

The next section present the results of the validation exercise.

9.2 Results

The results presented in this section are based on the observations, hand-written notes, audio recordings of the meetings and two questionnaires that team members were requested to complete after the first and second face-to-face meeting. Pilot questionnaire were given to one person not associated with this team to check the comprehensibility of the questions and instructions. Appendices S and V show the pilot questionnaires used for the first and second meeting. Prior to circulating it to the team that participated in the validation exercise, changes were made to the pilot version by re-arranging sentences, shortening sentences and re-drawing some of the boxes for tables as they did not all fit onto the one page, therefore making them appear messy. For each questionnaire there was a 100% response rate.

Team members did not ask any questions at the start of each meeting on the instructions, which team members had received by e-mail, outlining the purpose of this validation exercise and what would be required from the team. The researcher introduced herself to the assessor at the second meeting, as this was the first time that she had met her. Holly, who was the chair of both of the meetings, had already informed the assessor of my presence and explained its purpose. The assessor did not receive the instructions or the guidelines prior to the meeting. Due to time constraints, she was only asked to complete an informed consent form, but was not asked to complete the questionnaire or to put into practice the proposed guidelines.

At both meetings the researcher had observed that team members did not refer to the A5 cards during the meeting, or complete the log sheets, which were provided to them, to record the guidelines that they had put into practice, and guidelines that they had observed other team members put into practice. The packs of cards were only referred to when the questionnaire was distributed at the end of each meeting.

The next section looks at the results of the validation exercise from the first meeting.

9.2.1 Face-to-face meeting (1)

An agenda was prepared by Michelle, the course manager, to structure this meeting and was then passed onto Holly, the course chair. Holly then contacted Martin to see if he would be happy to present his work. Amendments were made to the agenda by Michelle based on Holly's input, before circulating it to the team.

Table 9.5 lists the disciplines and subject areas that team members are contributing to this meeting.

Team Member	Discipline and Subject Area
Holly	Computing: Software Engineering and Interaction Design
Julie	Computing
Martin	Human Computer Interaction and Education
Diane	Computing and Social Sciences
Michelle	N/A

Table 9.5: Discipline and Subject Area contributions to the first meeting

It is important to gather the information listed in table 9.5, because although a team can be multidisciplinary in respect to educational qualifications as shown in table 9.4, team members may contribute different disciplines and subject areas, depending on the type of work that team members do. The course manager, Michelle, was the only member, who did not provide the discipline and subject area

she was contributing to this meeting, as she did not think it was applicable to her situation. The researcher assumes that this may be because Michelle felt that she was not providing the Arts discipline in this team, that she studied at degree level.

For this meeting, team members reported four goals. Duplicate goals were removed from this list. Goals of this meeting included:

- Providing an update on progress,
- Discussing course materials in progress and aspects of course production,
- Giving feedback on drafts which have already been completed, and
- Making sure that everyone is happy and able to continue with his or her assigned responsibilities.

The meeting was approximately four hours long, with a short break taken for lunch. Due to technical problems there was no audio recording of this meeting. Results for the first meeting are therefore from an observational perspective, using the handwritten notes, and responses to questions, which were asked in the questionnaire.

The next section looks at the team members first reactions when presented with guidelines D1-D17, that they were asked to become familiar with before the meeting, and were sent to them by e-mail as a PowerPoint attachment.

9.2.1.1 First reactions

Table 9.6 reveals that there were mixed reactions when team members first read proposed guidelines D1-D17.

Team Member	Comments
Holly	"Yes, these are a good idea and we should do this, but do we?".
Julie	"To simplistic".
Martin	"All seem very sensible".
Diane	"There were a lot of them! They included some guidelines which were at quite a low level of detail".
Michelle	"Surprised at the quantity. Some seemed basic common sense. Things that I take for granted and don't think about".

Table 9.6: First reactions on seeing the proposed guidelines for face-to-face interactions, meeting one

Guidelines D1-D17 were perceived as being simplistic, but sensible, and including items often taken for granted and not thought about. Two team members, Diane and Michelle also raised a point based on the guideline quantity.

In turn, the next section looks at each of the guidelines, identifying which ones team members during their face-to-face interactions put into practice. The 12 guidelines from category, expectations of team members are examined first.

9.2.1.2 Expectations of team members category

Table 9.7 presents the 12 guidelines, which were placed in the expectations of team members category.

Guideline Number	Guideline Type
D1	Reference to terms, which are used
D2	Communicating with the team
D3	Establishing a system to identify who would like to speak next
D4	Discussing document formats
D5	Developing presentations and giving demonstrations
D6	Sharing information by using examples/showing demonstrations
D7	Making explicit requests
D8	Informing on changes
D9	Making decisions
D10	Establishing regular reporting periods
D11	Summarising information
D12	Updating on progress

Table 9.7: Twelve guidelines for expectation of team members

Figure 9.1 shows that nine proposed guidelines (D1, D2, D4, D6 - D10 and D12) were put into practice by over half of the team members. All members of this team put into practice D2, D9 and D10 and no one put into practice D3 and D5.

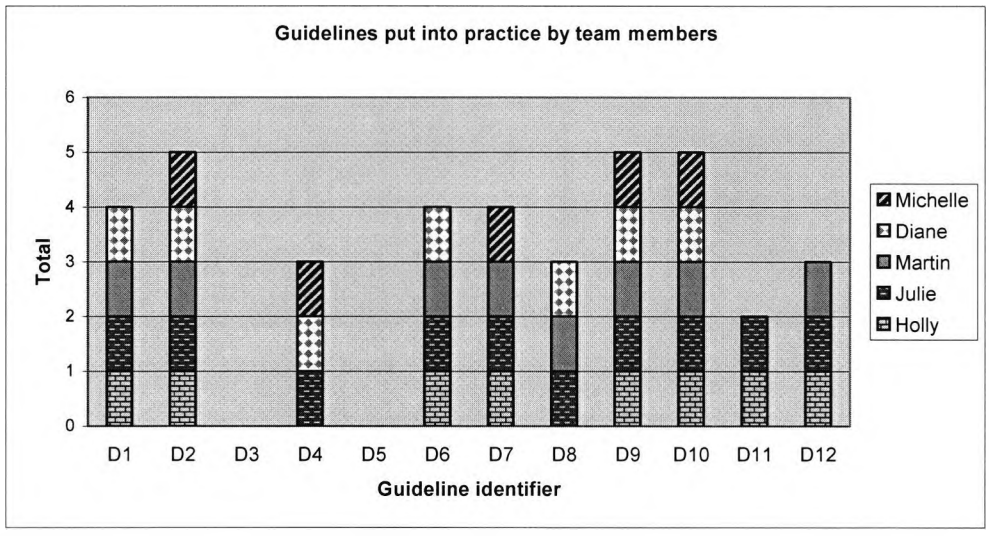


Figure 9.1: Team members putting into practice guidelines in the expectation of team members category, meeting one

Table 9.8, presents a summary informing why team members did not put into practice some of the proposed guidelines.

Guideline Number and Type	Comments
D1: Reference to terms, which are used	Everyone in the team apart from Michelle put into practice this guideline. Michelle felt that it was 'not her place' to put into practice what was suggested in this guideline. Michelle was contributing to this meeting by providing updates on previous actions, administrative support, taking minutes and answering questions on the academic institutions guidelines. According to Michelle, those contributions did not require what was suggested in D1.
D2: Communicating with the team	Everyone in the team put into practice this guideline.
D3: Establishing a system to identify who would like to speak next	No one in the team put into practice this guideline. Martin said that this tends to be 'quite organic', whilst Holly, Julie, and Michelle reported that this guideline was not necessary. Julie further added, especially for meetings with a small number of people present and who know each other well. According to Diane, the chair, Holly undertook this activity. Also, there were no team members who were blind or visually impaired, so some of what was suggested in this guideline did not apply to sighted persons.
D4: Discussing document formats	Julie, Diane and Michelle put into practice this guideline. Julie further clarified that this was in the context of the document format as a product. Holly simply said that this guideline was not necessary, and Martin did

	not comment.
D5: Developing presentations and giving demonstrations	No one in the team put into practice this guideline. Holly said that this guideline was too formal. Martin said that the presentations, which were given, were informal in nature. According to Diane and Michelle no one gave a presentation during the meeting.
D6: Sharing information by using examples/showing demonstrations	Everyone in the team apart from Michelle put into practice this guideline. Michelle reported that there was no need for her to refer to examples during that meeting. Holly reported that she did use examples wherever possible, but the proposed guideline was too formal for her to put into practice.
D7: Making explicit requests	Everyone in the team apart from Diane put into practice this guideline. Diane reported that she was unable to start on this work due to other commitments. For this reason she did not make any explicit requests that would help continue with her work. The remaining team members understood Diane's situation when she explained that she was unable to start on her work.
D8: Informing on changes	Everyone in the team apart from Holly and Michelle put into practice this guideline. Holly and Michelle provided no reasons.
D9: Making decisions	Everyone in the team put into practice this guideline.
D10: Establishing regular reporting periods	Everyone in the team put into practice this guideline.
D11: Summarising information	Only Holly and Julie put into practice this guideline. Diane said it was not applicable to the situation and Michelle said this would be actioned after the meeting through the minutes.
D12: Updating on progress	Everyone in the team apart from Diane and Michelle put into practice this guideline. Diane said it was not applicable to the situation and Michelle said that she would action this after the meeting via e-mail.

Table 9.8: Summary of why guidelines were not put into practice for the expectations of team members category, meeting one

Figure 9.2 shows that seven proposed guidelines (D1- D2, D4, D6 – D7, D9 and D12) were observed to be put into practice by over half of the team members. All members of this team observed that D1-D2, D4, D6, D9 and D12 was put into practice by other team members. It appears that D5, D8 and D11 were not put into practice by anyone.

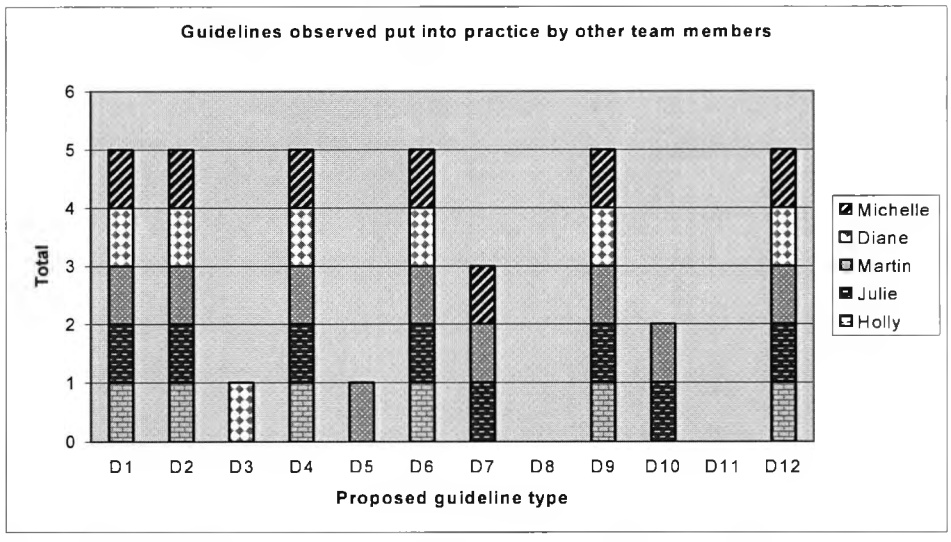


Figure 9.2: Observing other team members put into practice guidelines in the expectations of team members category, meeting one

It was Julie who said that everyone in the team had put into practice D1-D2, D4, D6 and D9. Holly also said that she had observed everyone put into practice D9 and D12. The following summarises which guidelines were observed being put into practice by other team members, but with no names provided. Holly, Diane, Michelle and Martin had observed D1. Martin, Diane and Michelle had observed D2. Diane had observed D3. Michelle and Diane had observed D4. Holly had said for D5, Martin did not do presentation of existing materials using PowerPoint, but verbally and through printed pages. Martin had

also observed D5. According to Holly, Julie, Martin, Diane and Michelle put D6 into practice. Martin and Diane had observed D6. According to Holly, Martin, Julie and Michelle put D7 into practice. Julie said that she and Martin had put D7 into practice. Martin, Michelle and Diane had observed D7. Julie, Martin and Diane had observed D8. Michelle, Martin and Diane had observed D9. According to Holly, Martin and Julie put D10 into practice. Martin, Julie, Diane and Michelle had observed D10. Martin, Julie and Diane had observed D11. Martin and Diane had observed D12. According to Julie it was Holly who had put into practice D12.

The next section presents the results of the planning and structuring category guidelines.

9.2.1.3 Planning and structuring category

Table 9.9 presents the four guidelines, which were placed in the planning and structuring category.

Guideline Number	Guideline Type
D13	Consulting the agenda once everyone has arrived to the meeting
D14	Structuring the meeting
D15	Making presentation preparations
D16	Selecting a date for a next meeting

Table 9.9: Four guidelines for planning and structuring activities

Figure 9.3 shows that only proposed guideline D16 was put into practice by over half of the team members. No one put into practice D15 and less than half of the team members put into practice D13 and D14.

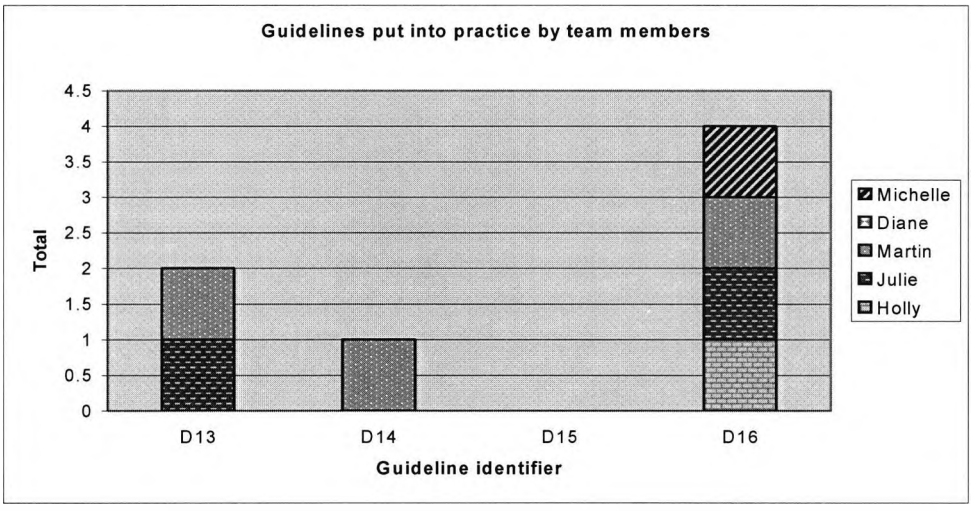


Figure 9.3: Team members putting into practice guidelines in the planning and structuring activities category, meeting one

Table 9.10 presents a summary informing why team members did not put into practice some of the proposed guidelines in this category.

Guideline Number and Type	Comments
D13: Consulting the agenda once everyone has arrived to the meeting	Only Julie and Martin put into practice this guideline. Holly said it was not appropriate to the situation. Diane said this was usual team practice. And, Michelle said that, Holly the chair, undertook this action.
D14: Structuring the meeting	Only Martin had said that he had put into practice this guideline. Holly said it was not relevant to the situation. Diane said this was usual team practice and Michelle said that, Holly, the chair, undertook this action.
D15: Making presentation preparations	No one put into practice this guideline. It was only Holly who mentioned that it was not relevant to their situation.
D16: Selecting a date for a next meeting	Everyone in the team apart from Diane put into practice this guideline. Diane said this was usual team practice.

Table 9.10 Summary of why guidelines were not put into practice for the planning and structuring activities category, meeting one

Figure 9.4 shows that that two proposed guidelines (D13 and D16) were observed put into practice by over half of the team members. It appears that D15 was not put into practice by anyone and all team members did not observe the same guidelines being put into practice by any members of the team.

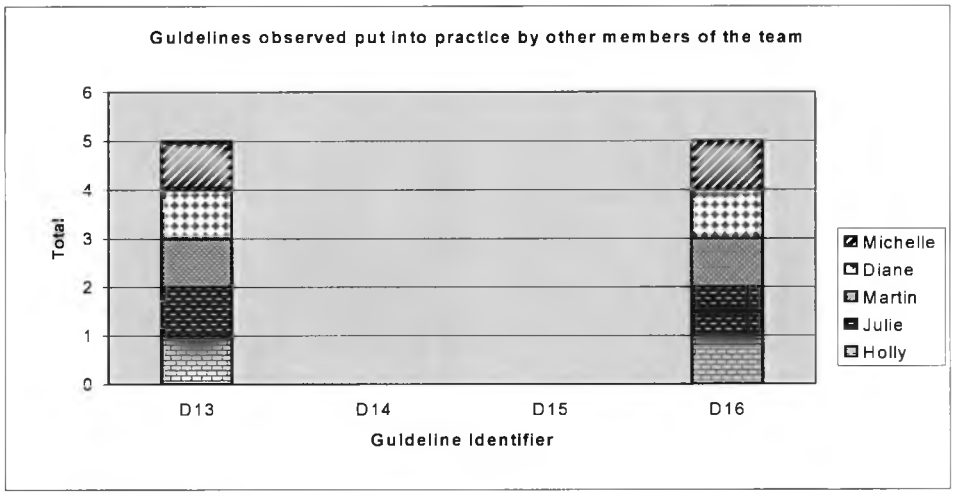


Figure 9.4: Observing other team members putting into practice guidelines in the planning and structuring activities category, meeting one

Julie said that everyone in the team had put into practice D13 and D16. Holly and Judith also said that everyone in the team had put into practice D16. The following summarises which guidelines were observed being put into practice by other team members, but with no names provided. Michelle and Martin had observed D13. Martin, Michelle and Diane had observed D14. It appears that no one had put into practice D15, and Martin, Diane and Michelle had observed D16.

The next section presents the results of the using technology category.

9.2.1.4 Using technology category

Table 9.11 presents the one guideline, which was placed in the using technology category.

Guideline Number	Guideline Type
D17	Encouraging self testing

Table 9.11: One guideline for using technology

No one had put into practice guideline D17, as everyone reported that this guideline was not relevant to his or her situation. Diane had further reported that this was not usual team practice. When the team was asked if they had observed another team member put into practice this guideline, no answers were provided, reinforcing the view that this guideline was not put into practice by anyone in the team.

The goals of the meeting and contributions from team members are examined next.

9.2.1.5 Goals of the meeting and contributions from team members

At the end of this meeting, Julie, Holly, Martin, Diane and Michelle had all reported that the goals that were expected at the outset had been achieved. The goals of this meeting were already identified in section 9.2.1. According to team members, the discussions which took place during the meeting served to support members of this course team in their writing tasks, and also to elucidate and clarify teaching

points to be made in the course. At this meeting, Michelle also felt that all questions might not have been answered as definitely as people may have liked. The researcher observed that in some cases, Michelle had to inform the team that she would have to investigate those matters, which were raised and to provide answers at a later time as she did not have a definitive answer to share with the team. No other team members had raised what Michelle felt. In addition, according to team members, each felt that they had made a relevant contribution to that meeting. Table 9.12 summarises this information.

Team Member	Perceived Contributions
Holly	• Chaired the meeting. • Discussed items. • Reported progress.
Julie	• Contributed to discussions (for example, by making suggestions). • Added knowledge from other courses.
Martin	• Talked a lot and made jokes.
Diane	• Contributed to all discussion topics.
Michelle	• Provided an update on previous actions. • Offered administrative support. • Took minutes. • Available to answer questions that team members may have on the academic institutions guidelines.

Table 9.12: Team members perceived contributions to the first meeting

According to the team, the contributing factors for achieving the goals of this meeting included:

- Willingness to head for the same goals,
- Understanding and knowing each other,
- Being part of a well-functioning team,
- Surrounded by friendly, supportive, intelligent people,
- Bringing knowledge from different sources,
- Honesty,
- Prepared to both make and receive suggestions,
- Feeding back their thoughts, and
- Drawing on their experiences.

No problems were witnessed during this meeting by team members or by the researcher. According to the researcher, this team is an example of a successful team. This was not only true because no problems were witnessed, but also because all team members were willing to share information with one another, working together in a relaxed atmosphere, providing and reacting to humour, facing no major disagreements, and decisions being made by including all team members. In addition, the agenda that was circulated was used to keep the meeting focussed. This was important, as this meeting was approximately four hours long, and contained important information which had to be covered by the end.

The next section examines what ratings team members gave for the 17 proposed guidelines in terms of their overall usefulness and their clarity.

9.2.1.6 Rating the proposed guidelines

To assess the perceived usefulness and clarity of the 17 proposed guidelines, team members were asked to provide overall ratings for those two dimensions using a 1-6 scale. An even number scale was used to encourage the respondent to give thought to their rating, and not select a neutral value. The ratings that were obtained are presented in the next section.

9.2.1.6.1 Rating the overall usefulness of the guidelines to the situation and their clarity

For the usefulness of the guidelines to the situation, 1 was extremely useful and 6 was not useful. 3.6 was the mean value for the overall usefulness of the guidelines to their situation, suggesting that the proposed guidelines were useful. Table 9.13 lists team member opinions when they were asked to justify their ratings.

Team Member	Opinion
Holly	"Useful to remind one of good practice".
Julie	"Do not feel they are relevant to a small team who already knows each well and who has established their own tacit group knowledge".
Martin	"They are a useful checklist".
Diane	"Would require time to apply and time is at a premium always".
Michelle	"Useful to bear in mind, but the team works well anyway".

Table 9.13: Opinions of team members when asked to justify the usefulness of the guidelines to their situation

The results also showed that 59% (10 out of 17) guidelines were put into practice by over half of the team members (D1- D2, D4, D6-D10, and D12). And, 53% (9 out of 17) guidelines were observed put into practice by over half of the team members during this meeting (D1-D2, D4, D6-D7, D9, D12-D13 and D16), reinforcing the view that those guidelines were useful and that team members do put them into practice. The value of 53% (9 out of 17) guidelines being put into practice by half of the team members also reinforces the notion that those guidelines can be put into practice by team members, and are not just aimed at the manager, leader or chair, when assessing the usefulness of the guidelines to their situation.

It must also be brought to attention that team members had commented that they often automatically put into practice what was mentioned in the proposed guidelines and that the guidelines were not explicitly used. For this reason, the values of 59% and 53%, which showed guidelines, put into practice by team members and observed put into practice by other members of the team, should be interpreted with care. As team members did not complete a log during the meeting, to record each guideline that they had explicitly put into practice, providing a retrospective account instead, it cannot be guaranteed that those interactions described in the guidelines took place as a result of putting into practice that guideline during the meeting, or whether it is something that team members already put into practice. The mean value of 3.6, however, reinforces the usefulness of the guidelines to this teams situation. Table 9.14 lists the team members experience of putting the proposed guidelines into practice.

Team Member	Experience
Holly	"Thought provoking".
Julie	"They were not used as did not feel they were relevant to a small team who know each other well and who have over time established their own "tacit group knowledge"".
Martin	"Seem useful".
Diane	"None at all, expect informally as established practice".
Michelle	"Good theory and good to put into practice, but there was a lot to take in. Some were common sense and do this already".

Table 9.14: Team member experiences of putting into practice the 17 guidelines, meeting one

The following conclusions were drawn, regarding the usability of the proposed guidelines. Holly stated that the guidelines were a good idea and that a team should consider them, but questioning whether teams actually do. According to Julie the guidelines were too simple. On a more positive note, Martin had said that the guidelines were all sensible, and made him think more about the process of interaction. Diane, however, commented on the quantity, low level of detail and how time is always at a premium to apply such guidelines. Michelle had also commented on the quantity, and mentioned that although some of the guidelines were basic common sense, including items often taken for granted and not thought about. The different guidelines also related to different people, depending on their role in the meeting. Overall, there was a mixed reaction from team members. The clarity of the guidelines is examined next.

For the clarity of the guidelines presented, 1 was extremely clear and 6 was not clear. 1.8 was the mean value for the overall clarity of the guidelines to the situation, suggesting that they were very clear. Julie, Diane and Michelle also reported that the guidelines were clear. Michelle also said that she could relate too what was mentioned in the guidelines.

The next section looks at what guidelines team members put into practice after this face-to-face meeting when communicating with everyone by e-mail, and before the next meeting took place.

9.2.2 E-mail interactions

There were nine e-mail messages that were sent to the team following the first meeting, but before the second one took place. Table 9.15 lists what types of messages were sent to the team and by who, to give an insight into how the team used e-mail to communicate with all of its members away from a face-to-face meeting and before the next meeting took place.

Team Member	Date	Contents
Message sent on behalf of Michelle, by Christine who is the course team secretary	01 June 2004	To find out availability for a meeting in December.
Michelle	01 June 2004	Informing the team of an error made when inputting data.
Julie	08 June 2004	To find out how activities were numbered.
Martin	10 June 2004	Answering the question asked by Julie in her e-mail sent on 08 June 2004.
Holly	15 June 2004	Proposing a suggestion for the meeting on 24 June 2004. Welcomed suggestions and comments for the agenda which was being developed.
Julie	21 June 2004	Sharing with the team information on resources.
Holly	21 June 2004	Informs Julie that that the message received on that day was a good idea.
Michelle		Circulated the agenda for the meeting on 24 June 2004.
Michelle		Circulated the minutes of the meeting on 28 May 2004.

Table 9.15: Summary of e-mail messages sent to the team after the first meeting, but before the second meeting took place

Two discussion threads formed out of the nine messages sent to the team. A discussion thread in this context referred to additional messages circulated to the team in response to a message sent by a team member. Thread one was created when Martin responded to Julie's e-mail, dated 08 June 2004, and thread two, was created when Holly responded to Julie's e-mail, dated 21 June 2004.

The questionnaire that was distributed at the end of the second meeting was divided into two sections. The first section was to find out which guidelines had been put into practice by team members when they were communicating together by e-mail. The second section was to find out which guidelines were put into practice during the second meeting. Completed log sheets were also not brought to the second meeting, so all responses to the questions in the questionnaire were reflective.

The next section examines team members first reactions when presented with the guidelines that they were asked to become familiar with for e-mail interactions. Those guidelines were also included in the PowerPoint presentation sent to team members before the first meeting. However, team members were not asked to focus on them, as they were not related to face-to-face interactions.

9.2.2.1 First reactions

Table 9.16 reveals that there were mixed reactions when team members were asked about their first reactions after reading the guidelines which were proposed for interacting with the team via e-mail.

Team Member	Comments
Holly	"Some seemed sensible and some seemed inappropriate for my context".
Julie	"Skeptical as to their utility. This is because guidelines are of most utility when people are uncertain of what they are doing in unfamiliar circumstances which is not true for this team."
Martin	"They sound very sensible". However, often do not have the time to undertake the various tasks when you are busy. Also, the proposed guidelines sound rather rigid for small teams that tend to work organically. The proposed guidelines would work better for a more traditional bureaucratic type meeting, for example, a Faculty Board.
Diane	"There were lots of them and they felt very formal".
Michelle	"Most of them were reasonable, clear and concise. Fine for theory but not always possible in practice. A lot of them were common sense and good manners that would come naturally to a lot of people".

Table 9.16: First reactions on seeing the proposed guidelines for e-mail interactions

In turn, the next section examines each of the guidelines, identifying which ones team members during their e-mail interactions put into practice. The 13 guidelines from category, expectations of team members are examined first.

9.2.2.2 Expectations of team members category

Table 9.17 presents the 13 guidelines, which were placed in the expectations of team members category.

Guideline Number	Guideline type
A1	Circulating information to the entire team
A2	Monitoring reporting periods to the team
A3	Keeping team members up to date with whom they are working with
A4	Project glossary
A5	Informing with your plans before starting on work/giving a summary of what has been achieved
A6	Starting on work earlier than planned
A7	Circulating draft documents
A8	Summarising changes
A9	Sharing relevant information to members of the team
A10	Sharing information with people outside of the team
A11	Producing reports
A12	Document formats
A13	Notification of new documents

Table 9.17: Thirteen guidelines for expectations of team members

Figure 9.5 shows that three proposed guidelines (A1, A5 and A9) were put into practice by over half of the team. There was no evidence of the whole team putting into practice the same guideline. Guidelines, A3, A6 and A13 no one used. No conclusions can be drawn why team members did not put into practice

A13. This row had been missed out from the table in the questionnaire. This had not been spotted by the researcher or during the pilot test.

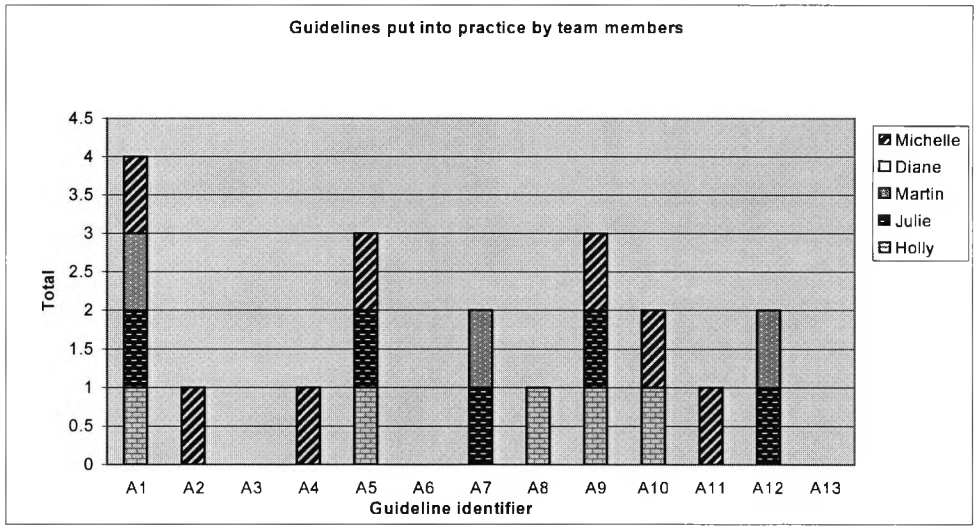


Figure 9.5: Team members putting into practice guidelines in the expectations of team members category, e-mail interactions

Table 9.18 presents a summary informing why team members did not put into practice some of the proposed guidelines. Diane did not put into practice any of the proposed guidelines as she was on study leave since the last meeting, and spent approximately one hour preparing for this second meeting.

Guideline Number and Type	Comments
A1: Circulating information to the entire team	Everyone apart from Diane put into practice this guideline.
A2: Monitoring reporting periods to the team	Julie said this was not relevant. Holly reported that this was Michelle's job and was done face-to-face. Similarly, Martin said this was not his job, but also adding that he trusted the people that he was working with.
A3: Keeping team members up to date with whom they are working with	Holly and Michelle both reported that there were no changes so this guideline was not put into practice. Martin also stated that there was no need for it.
A4: Project glossary	Julie and Holly reported that they were not up to the glossary stage. Holly further clarified that the glossary that they referred to during the meeting was for course content and not project terminology.
A5: Informing with your plans before starting on work/giving a summary of what has been achieved	Martin said that it was difficult for him to inform everyone of his plans in advance, as he often does not know what he is going to write until he actually writes it.
A6: Starting on work earlier than planned	Michelle and Julie reported there was no need to put this guideline into practice. Martin and Holly reported that they did not have time to put this guideline into practice.
A7: Circulating draft documents	Martin said that he would like to do what is included in this guideline more often. However, he has observed that the most useful responses were received at a face-to-face meeting. According to Holly, her work has not yet required her to circulate a draft to team members.
A8: Summarising changes	Michelle simply said that there was no need, whilst Julie said it was irrelevant to the situation.
A9: Sharing relevant information to members of the team	No team members made a comment.
A10: Sharing information with people outside of the team	Julie simply said that it was irrelevant to their situation. No other members had made a comment.
A11: Producing reports	Julie reported that it was irrelevant and Holly said that she has not yet been required to produce a report.
A12: Document formats	Michelle said that there was no need for this guideline and Holly reported that they already had an agreed format, which they were using.
A13: Notification of new documents	No comments were received as this guideline was missed out from the table in the second questionnaire that was circulated to the team.

Table 9.18: Summary of why guidelines were not put into practice for the expectations of team members category, e-mail interactions

Figure 9.6 shows that there was evidence of only two of the proposed guidelines that were observed put into practice by team members.

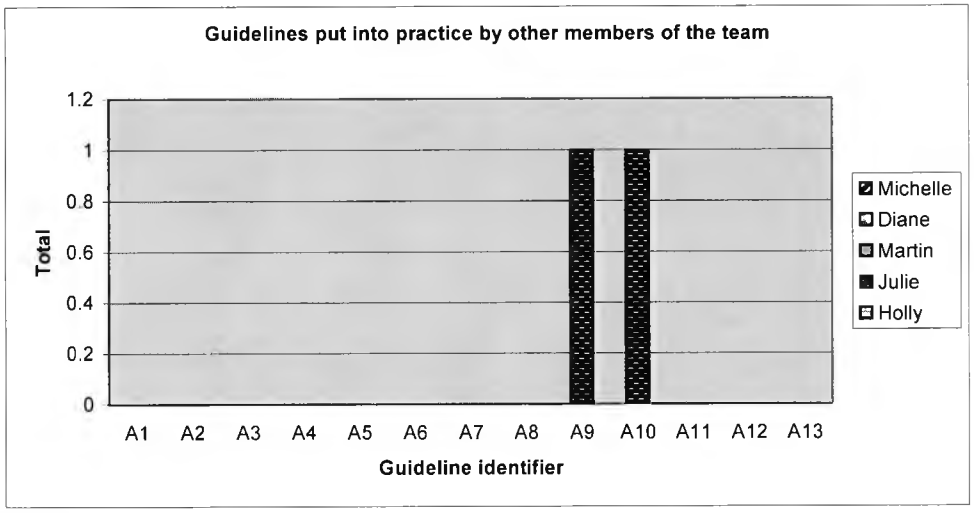


Figure 9.6: Observing other team members putting into practice guidelines in the expectations of team members category, e-mail interactions

Team members had also informed the researcher that there was also other evidence of team members putting into practice the proposed guidelines in this category, but did not provide any names to identify who they were referring too. For this reason figure 9.6 only includes graphical representations for guidelines A9 and A10, as team members provided the names of the team member they observed put the two guidelines into practice. Five guidelines (A1, A4-A5, A9 and A12) did not include names. Those guidelines were observed put into practice by over half of the team members. All team members had stated that they had observed guidelines A1 and A5 put into practice by other members of the team. Michelle had observed A2. Julie and Diane had observed A3. Holly, Diane, Julie and Michelle had observed A4. Martin had commented that Diane would be good at what was proposed in A5. Holly and Diane had observed A6, with Martin adding that Julie would be good at what was proposed in A6. Julie and Michelle had observed A7. Holly had observed A8. Holly, Julie, Martin and Michelle had observed A9. Martin had also mentioned that it was Julie who had a go at this. For A10, Martin had observed Julie liasing with people outside of her area. Diane had observed A11. Diane, Julie and Martin had observed A12. Lastly, Diane had observed A13.

The next section presents the results of the planning and structuring category guidelines.

9.2.2.3 Planning and structuring category

Table 9.19 presents the six guidelines, which were placed in the planning and structuring category.

Guideline Number	Guideline Type
B1	Circulating a draft agenda
B2	Back up plans for not being able to participate during the meeting
B3	Sending documentation(s) before a meeting, to be referred to during the meeting
A14	Circulating meeting minutes
A15	Informing on non-working periods
A16	Next meeting

Table 9.19: Six guidelines for planning and structuring activities

Figure 9.7 shows that proposed guideline A15 was put into practice by over half of the team members. No one had put into practice B2, and less than half of the team members had put into practice A14, A16, B1 and B3.

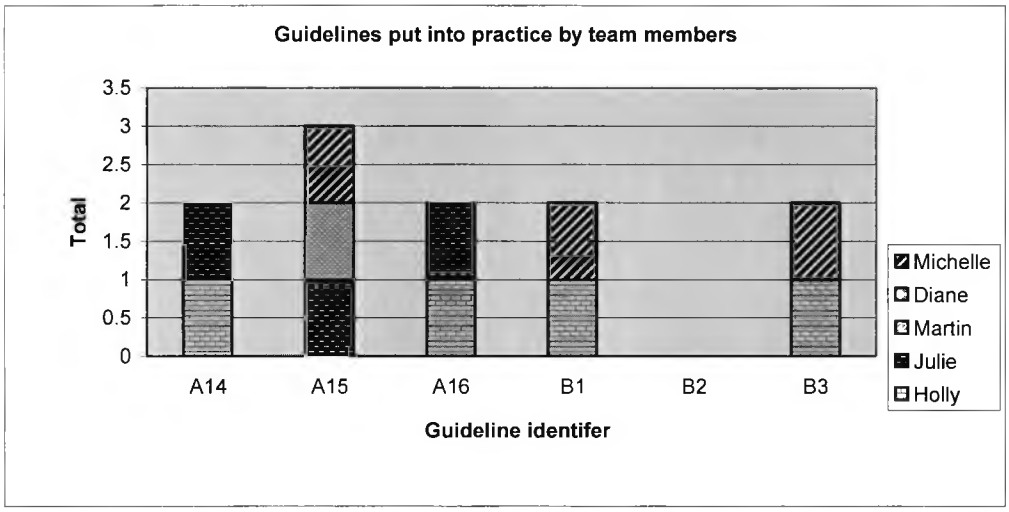


Figure 9.7: Team members putting into practice guidelines in the planning and structuring activities category, e-mail interactions

Table 9.20, presents a summary informing why team members did not put into practice some of the proposed guidelines in this category.

Guideline Number and Type	Comments
B1: Circulating a draft agenda	Julie reported that it was not her responsibility to undertake this action.
B2: Back up plans for not being able to participate during the meeting	Martin said that because they were a small team, everyone tried to attend all meetings. Michelle said that there was no need to put into practice this guideline as everyone had attended this meeting. Julie said it was irrelevant and Holly said that she had to attend the meetings.
B3: Sending documentation(s) before a meeting, to be referred to during the meeting	Julie said this was irrelevant to their situation.
A14: Circulating meeting minutes	Julie said that this was not her area of responsibility. Michelle acknowledged that she was late sending out meeting minutes. Minutes for the meeting on 28 May 2004 were sent on 23 June 2004, and minutes for the meeting on 24 June 2004 were sent on 09 July 2004.
A15: Informing on non-working periods	Holly reported that she did not have any non-working periods.
A16: Next meeting	Michelle said that this was done at the meeting and not via e-mail.

Table 9.20: Summary of why guidelines were not put into practice for the planning and structuring activities category, e-mail interactions

Figure 9.8 shows those three proposed guidelines (A14, A16 and B1) were observed put into practice by over half of the team members. It appears that B2 was not put into practice by anyone.

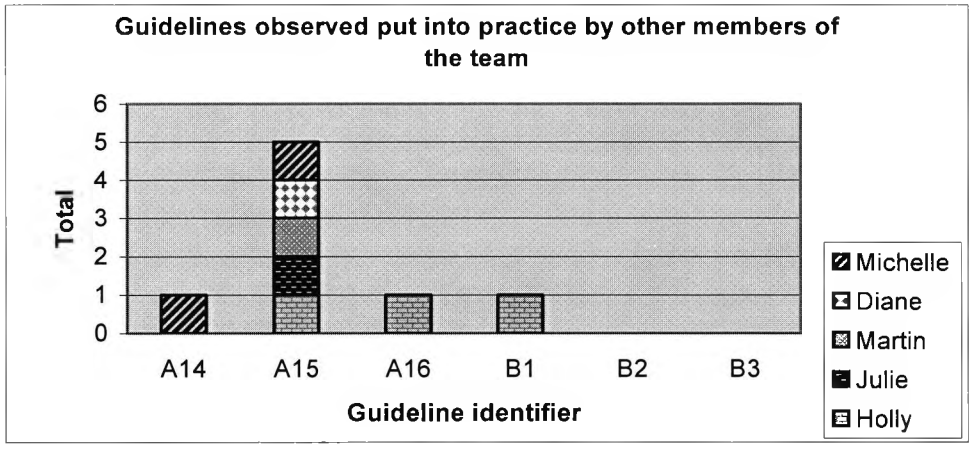


Figure 9.8: Observing other team members putting into practice guidelines in the planning and structuring activities category, e-mail interactions

It was Martin, Holly, Diane and Julie who had observed A14. Martin had also mentioned that Michelle had actioned this. The others had not provided the names of team members that they had observed. For this reason, figure 9.8 only shows that Michelle put A14 into practice. Julie and Martin had observed A15. Martin further added that it was everyone he had observed put into practice this guideline. Julie, Diane and Martin had observed A16. Martin had also said that Holly had put this guideline into practice, as shown in figure 9.8. The others had not provided the names of team members that they had observed.

All team members reported that they had observed B1 put into practice, however, only Martin had mentioned that it was Holly, also shown in figure 9.8. Lastly, Martin and Holly had both observed B3, but no graphical representation is included as no name was given.

The next section presents the results of the using technology category.

9.2.2.4 Using technology category

Table 9.21 presents the two guidelines, which were placed in the using technology category.

Guideline Number	Guideline Type
A17	Encouraging self-testing
A18	Storing relevant documentation

Table 9.21: Two guidelines for using technology

Figure 9.9 shows that one proposed guideline, A18 was put into practice by over half of the team members. It appears that A17 was not put into practice by anyone in this team.

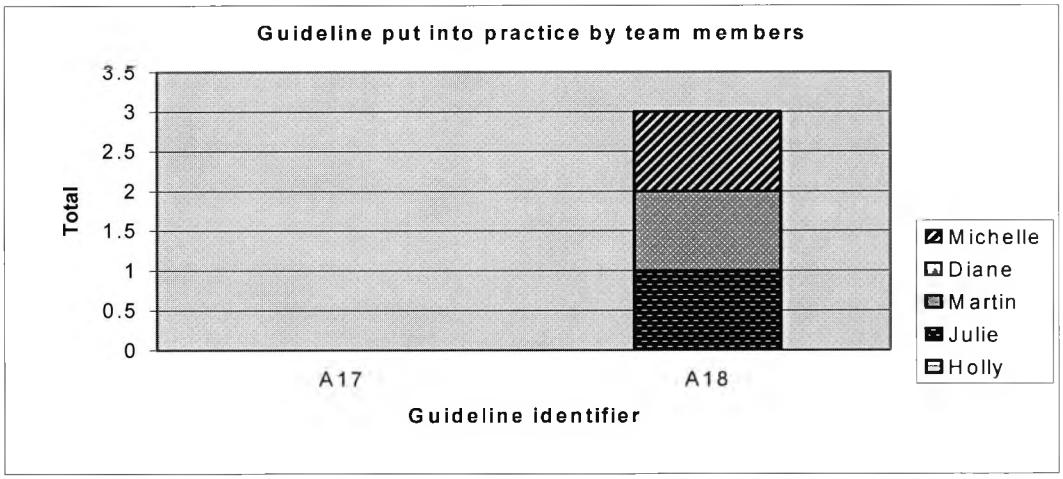


Figure 9.9: Team members putting into practice guidelines in the using technology category, e-mail interactions

Table 9.22 presents a summary informing why team members did not put into practice some of the proposed guidelines in this category.

Guideline Number and Type	Comments
A17: Encouraging self-testing	Michelle, Holly and Julie had said there was no need for this.
A18: Storing relevant documentation	Holly said this was not applicable.

Table 9.22: Summary of why guidelines were not put into practice for the using technology category, e-mail interactions

One proposed guideline, A18 was observed put into practice by over half of the team members. It appears that A17 was not put into practice by anyone in this team. A graphical representation was not produced, as team members did not identify who they had observed put into practice what was included in the proposed guideline. It was Julie and Diane who had observed A18. According to Martin, A18 could probably be used, but he could not say for definite, as he does not often look at the shared area that they use.

The next section examines what ratings team members gave for the 20 proposed guidelines in terms of their overall usefulness and their clarity. The procedure described in 9.2.2.6 was also used here.

9.2.2.5 Rating the overall usefulness of the guidelines to their situation and their clarity

3.2 was the mean value for the overall usefulness of the guidelines to their situation, suggesting that that proposed guidelines were useful. Table 9.23 lists team members opinions when they were asked to justify their ratings.

Team Member	Opinion
Holly	"Some applicable and good reminders. Some inapplicable".
Julie	"We are very comfortable with what we are already doing. Some of this is embodied in the guidelines – but since its also part of the group tacit knowledge, it does not need explicating".
Martin	"They sound great, but implementing them would appear to be quite time consuming and this team tends to work organically".
Diane	"Useful best practice for teams that do not already undertake best practice".
Michelle	"Cards have their use but are too time consuming to be referred to at every meeting. They help set up good practice and should maybe be referred to regularly, say every 6 months at a meeting, but not monthly. Peoples time is always in demand".

Table 9.23: Opinions of the team members when asked to justify the usefulness of the guidelines to their situation, e-mail interactions

The results presented in table 9.23 show that there was a mixed reaction when team members were asked about the usefulness of the proposed guidelines. The results also showed that 25% (5 out of 20) guidelines were put into practice by over half of the team members (A1, A5, A9, A15 and A18). And, 50% (10 out of 20) guidelines were observed put into practice by over half of the team members during the meeting (A1, A4-A5, A9, A12, A14-A15, A16, A18 and B1), reinforcing the view that those guidelines were quite useful and those that were relevant to the team were put into practice. As stated in 9.2.2.6.1, the values of 25% and 50% must be interpreted with care, as it cannot be guaranteed that team members explicitly put into practice those guidelines and descriptions that they were presented with, or whether it included aspects of what the team already does when they are working together. Again, no completed logs were returned to the researcher. As a result all team members provided responses to the questions in the questionnaire giving a retrospective account of events. The clarity of the guidelines is examined next.

Two was the mean value for the overall clarity of the guidelines to their situation, suggesting that they were clear. The next section looks at the results from the second face-to-face meeting.

9.2.3 Face-to-face meeting (2)

In addition to team members that had attended the meeting as discussed in section 9.2.1, this meeting also included an assessor, Abigail. This section identifies the background of Abigail. For confidentiality

reasons, a pseudo name belonging to the same gender has been used. Section 9.1.2.1 already listed the disciplinary backgrounds for the five-team members who attended the first meeting.

Team Member	Title	Level	Discipline
Abigail	Artificial Intelligence and Education	PhD	Computing
	Mathematics	BA Hons	Science

Table 9.24: Disciplinary background for the assessor who was not present at the first meeting

As described in section 9.2.1, an agenda was also used to structure the second meeting. Holly and Michelle had produced this agenda. Martin had also suggested talking about his work to Holly. To produce the agenda, Michelle reminded Holly that it had to be actioned and provided her a template, so that she could include her extra items. Holly thought about what to cover during this meeting and then sent it to Michelle. This was then followed up with a face-to-face discussion. Following this discussion, the proposed agenda was modified. Michelle then formatted it and circulated it to the team.

The disciplines and subject areas that team members are contributing to the second face-to-face meeting are summarised in table 9.25.

Team Member	Discipline and Subject Area
Holly	Computing, Software Engineering and Interaction Design.
Julie	Computing
Martin	No answer was provided.
Diane	Business and Management, Computing and Engineering
Michelle	Administration
Abigail	Science and Computing: Human Computer Interaction

Table 9.25: Discipline and Subject Area contributions to the second meeting

According to table 9.5, section 9.1.2.1, Martin was contributing to the first meeting Human Computer Interaction and Education. The researcher had assumed that Martin is contributing to this meeting, the same discipline and subject areas identified in table 9.5 (Human Computer Interaction) as he did not complete this information in the second questionnaire. In the second questionnaire, Holly had explicitly mentioned that she was contributing the same discipline as the first meeting. Julie had also selected the same discipline as the first meeting. Diane in this meeting had also included the disciplines, Business and Management and Engineering disciplines, which were not mentioned during the first meeting. Michelle had said that she was contributing to this meeting administrative support. Michelle had identified no discipline and subject area at the previous meeting, as revealed in table 9.5.

For this meeting, team members reported four goals. Duplicate goals were removed from this list. Goals of this meeting included:

- Reviewing where the course team is with the course,
- Providing an overview for the assessor and the team on progress,
- Receiving feedback on contributions from the team and the assessor, and
- Informing the assessor of future plans.

This meeting was approximately three and half-hours long and a short break was taken for lunch. The meeting was also audio recorded using an Aiwa minidisc recorder AM-F5. Results presented in this section are based on observations, hand-written notes, audio recordings and the questionnaire which team members completed at the end of the meeting.

Abigail, the assessor, however, was only given the first part of the second questionnaire to identify her disciplinary background and no questions on the proposed guidelines. Due to Abigail's time constraints she was not asked to validate the guidelines which were proposed. At this meeting team members were also not asked to rate their reactions on seeing the guidelines for the second time. Reactions of the five team members when presented with the guidelines for the first time was gathered from the first questionnaire.

In turn, the next section examines each of the guidelines, identifying which ones team members during their face-to-face interactions put into practice. The 12 guidelines from the first category, expectations of team members are examined first.

9.2.3.1 Expectations of team members category

Table 9.26 re-presents the 12 guidelines presented in table 9.7, the expectations of team members category in section 9.2.1.2.

Guideline Number	Guideline Type
D1	Reference to terms, which are used
D2	Communicating with the team
D3	Establishing a system to identify who would like to speak next
D4	Discussing document formats
D5	Developing presentations and giving demonstrations
D6	Sharing information by using examples/showing demonstrations
D7	Making explicit requests
D8	Informing on changes
D9	Making decisions
D10	Establishing regular reporting periods
D11	Summarising information
D12	Updating on progress

Table 9.26: Twelve guidelines for expectations of team members

Figure 9.10 shows that eight proposed guidelines (D1-D2, D6-D10 and D12) were put into practice by over half of the team members. All members of this team put into practice D1, D8 and D12, and no one put into practice D3.

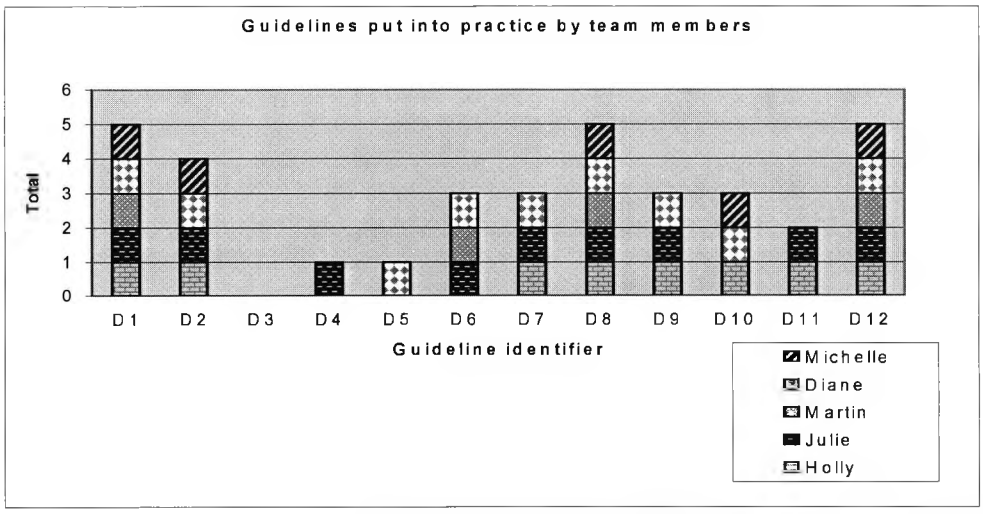


Figure 9.10: Team members putting into practice guidelines in the expectation of team members category, meeting two

Table 9.27 presents a summary informing why team members did not put into practice some of the proposed guidelines.

Guideline Number and Type	Comments
D1: Reference to terms, which are used	Everyone in the team put into practice this guideline. Martin said this is particularly important for when writing the courses.
D2: Communicating with the team	Only Martin said that this was not really an issue. Other team members did not provide a comment.
D3: Establishing a system to identify who would like to speak next	Diane had said this was Holly's duty, as the chair. Holly said this was done implicitly, by monitoring if anyone showed any suggestions that they would like to speak. Michelle said that there was no need to put into practice this guideline. According to Martin this does not tend to be necessary.
D4: Discussing document formats	Diane and Michelle said that this was not necessary. Holly reported that although not really talking about document formats per se, they did refer to style sheets during this meeting.
D5: Developing presentations and giving demonstrations	Martin reported that this was not a formal team. Other team members did not provide a comment.
D6: Sharing information by using examples/showing demonstrations	Michelle said that this was not relevant to her updates.
D7: Making explicit requests	Michelle said she did not need to do this.
D8: Informing on changes	Everyone in the team put into practice this guideline.
D9: Making decisions	Michelle said that she did not have to make a decision. According to Martin a very informal approach was employed.
D10: Establishing regular reporting periods	Diane said that there was not enough time to do this. Michelle had reported that she would rather summarise this type of information in the minutes.
D11: Summarising information	No team members provided a comment.
D12: Updating on progress	Everyone in the team put into practice this guideline.

Table 9.27: Summary of why guidelines were not put into practice for the expectations of team members category, meeting two

Members of this team did not write down names of team members that they had observed put into practice the proposed guidelines. Hence a graphical representation could not be produced. A textual summary follows. Eight proposed guidelines (D1, D3, D4, D7-D9, D11 and D12) were observed put into practice by over half of the team members. All members of this team had observed that D1 was put into practice. Michelle, Julie, Diane and Holly had observed D2. Diane had observed D3. Julie, Michelle and Diane had observed D4. Michelle and Diane had observed D5. Julie and Holly had observed D6. Michelle, Holly, Julie and Diane had observed D7-D9 and D12. Diane and Michelle had observed D10. And, Holly, Julie and Diane had observed D11.

The next section presents the results of the planning and structuring category guidelines.

9.2.3.2 Planning and structuring category

Table 9.28 re-presents the four guidelines presented in the planning and structuring category in table 9.9, section 9.2.2.3.

Guideline Number	Guideline Type
D13	Consulting the agenda once everyone has arrived to the meeting
D14	Structuring the meeting
D15	Making presentation preparations
D16	Selecting a date for a next meeting

Table 9.28: Four guidelines for planning and structuring activities

Figure 9.11 shows that one guideline, D14 was put into practice by over half of the group. It appears that D15 was not put into practice by anyone.

Figure 9.11: Team members putting into practice guidelines in the planning and structuring categories, meeting two

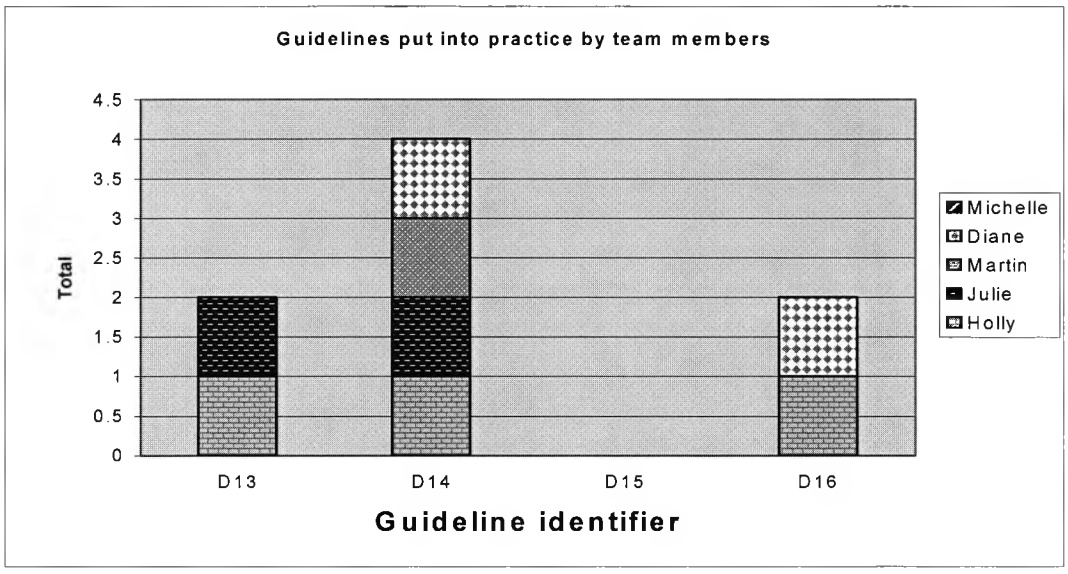


Table 9.29 presents a summary informing why team members did not put into practice some of the proposed guidelines.

Guideline Number and type	Comments
D13: Consulting the agenda once everyone has arrived to the meeting	Michelle felt that it was Holly's role as the chair to do this.
D14: Structuring the meeting	Michelle and Diane both reported that they felt that it was Holly's role as the chair to do this.
D15: Making presentation preparations	Diane said this was not relevant. Michelle reported that no preparation was needed. And, Holly said that there was not enough time to do this.
D16: Selecting a date for a next meeting	Michelle reported that this was previously agreed at the face-to-face meeting.

Table 9.29: Summary of why guidelines were not put into practice for the planning and structuring activities category, meeting two

Members of this team did not write down names of team members that they had observed put into practice the proposed guidelines. Hence a graphical representation could not be produced. A textual summary follows instead. Holly and Julie had observed D13. Michelle and Julie had observed D14. Diane and Holly had observed D16. It also appears that no one had put into practice D15. No comments were provided either.

The next section presents the results of the technology category.

9.2.3.3 Technology category

Table 9.30, re-presents the one guideline presented in table 9.21, using technology category in section 9.2.2.4.

Guideline Number	Guideline type
D17	Encouraging self testing

Table 9.30: One guideline for using technology

No one in the team had observed another team member put into practice guideline D17.

The next section examines the goals of the meeting and contributions from team members.

9.2.3.4 Goals of the meeting and contributions from team members

At the end of this meeting, Julie, Holly, Martin, Diane and Michelle had all reported that the goals that were expected at the outset had been achieved. The goals of this meeting were already identified in section 9.2.3. Julie had reported that there was approval from the team and Abigail, the assessor, and that several good ideas were provided. Michelle had reported that team members were all given an opportunity to discuss their work and to receive feedback from Abigail. According to Martin, Abigail had left the meeting content. Holly felt that there had been good preparation for this meeting by all team members. In addition, according to team members, each felt that they had made a relevant contribution to the meeting. Table 9.31 summarises this information.

Team Member	Perceived Contributions
Holly	• Chaired the meeting. • Contributed ideas.
Julie	• Shared information about progress. • Discussed issues.
Martin	• Discussed his block.
Diane	• Presented ideas. • Presented her block. • Clarified some points which may help the course.
Michelle	• Provided administrative support. • Produced minutes. • Took on board any queries/actions to investigate on behalf of the team.

Table 9.31: Team members perceived contributions to the second meeting

No problems were witnessed during this meeting by team members or by the researcher. According to Martin when everyone in the team does not agree on things, that is part of the fun when working together as a team. According to the researcher, this team was an example of a successful team. The same factors identified in 9.2.2.5 also apply here to illustrate why this team was considered successful from the researchers point of view. Again, the team was working together in a relaxed atmosphere, providing and reacting to humour, facing no major disagreements, and decisions being made by including all team members. The presence of Abigail, the assessor also did not seem to affect the dynamics of the group and the team interacted in the same way that was observed during the first meeting. Small differences between the second and the first meeting included team members forgetting to explain acronyms that they were using, resulting in Abigail, asking what the acronym were representing, and everyone not having a copy of the textbook which was sometimes referred to during the meeting. This brings to attention the importance of ensuring that there are sufficient copies of any material that is going to be referred to during the meeting. In this situation, another team member lent their copy of the book to Abigail. In addition, the agenda was used to keep the meeting focussed. This was important, as this meeting was approximately 3 to 3 ½ hours long and contained important information, which had to be covered by the end. This meeting was also the only opportunity for the team to discuss and receive feedback from Abigail. The five team members could arrange informal meetings in their own time, as they all worked at the same academic institution.

The next section examines what ratings team members gave for the 17 proposed guidelines in terms of their overall usefulness and their clarity. The procedure described in 9.2.2.6 was also used here.

9.2.3.5 Rating the overall usefulness of the guidelines to their situation and their clarity

4.2 was the mean value for the overall usefulness of the guidelines to their situation, suggesting that that proposed guidelines were quite useful. There was a difference of 0.6 amongst the rating given at the end of the first meeting and at the end of the second meeting. 3.6 was the mean value for the overall usefulness of the guidelines to the situation calculated for the first meeting. The difference in value suggests that those guidelines were perceived as being less useful for a second meeting. Table 9.32 lists team members opinions when they were asked to justify their ratings. Julie and Martin did not provide their opinions.

Team Member	Opinion
Holly	"Some not appropriate, some impractical".
Julie	-
Martin	-
Diane	"Not useful as I already follow such guidelines".
Michelle	"My role is not to enforce the roles of these guidelines but to assist the team with them".

Table 9.32: Opinions of team members when asked to justify the usefulness of the guidelines to their situation, meeting two

The results presented in tables 9.32 and table 9.12 show that there were differences amongst the perceived usefulness of the guidelines to their situation, across the two meetings. The results also showed that 47% (8 out of 17) guidelines were put into practice by over half of the team members (D1-D2 and D6-D11). And, 47% (8 out of 17) guidelines were observed put into practice by over half of the team members during the meeting (D1-D2, D4, D7-D9, D11 and D12), reinforcing the view that those guidelines were quite useful and those that were relevant to the team were put into practice. As stated in 9.2.2.6.1, the value of 47% must be interpreted with care, as it cannot be guaranteed that team members explicitly put into practice those guidelines that they were presented with, or whether it included aspects of what the team already do when they are working together. Again, no completed logs were returned to the researcher. As a result all team members provided responses to questions in the questionnaire, giving a retrospective account of events. The clarity of the guidelines is examined next.

1.8 was the mean value for the overall clarity of the guidelines to the teams situation, suggesting that they were very clear.

The next section presents a discussion on the findings from this validation exercise.

9.3 Discussion

The discussion, which is presented in this part of the chapter, is structured into three sections: comparing the proposed guidelines with existing guidelines, guidelines put into practice by team members and observed put into practice by other team members and promoting mutual understanding in teamwork.

The next section compares the proposed guidelines with existing guidelines.

9.3.1 Comparing the proposed guidelines with existing guidelines

Chapter 8 presented 38 guidelines based on the empirical data, collected for this investigation to promote mutual understanding for team interactions that a team can put into practice when they communicate together as a group, face-to-face, and use e-mail in between each face-to-face meeting.

The three proposed guidelines for how e-mail can be used before a face-to-face meeting is examined first.

9.3.1.1 Proposed guidelines to put into practice before a face-to-face meeting

Table 9.33 presents the three guidelines, which were proposed for e- mail interactions before a face-to-face meeting.

Guideline Number	Guideline Type
B1	Circulating a draft agenda
B2	Back up plans for not being able to participate during the meeting
B3	Sending documentation(s) before a meeting, to be referred to during the meeting

Table 9.33: Three guidelines for e-mail interactions before a face-to-face meeting

The guidelines for before a meeting, Napier and Gerschenfield (1993) included in it, circulating a draft agenda. Circulating a draft agenda was was also included in B1. According to Napier and Gerschenfield, the leader should undertake this activity. Napier and Gerschenfield further revealed that one of the main problems that participants often felt was not being involved in establishing the goals of a meeting. B1 incorporated the need to circulate a draft agenda to the team, to seek comments from everyone. By circulating an agenda in advance of the meeting can help team members plan their contributions for that meeting as well.

B2, back up plans for not being able to participate during the meeting, was surprisingly not covered by Napier and Gerschenfield (1993). B2 included action that team members can take to inform the team of non-participation during the meeting.

B3, sending documentation(s) before a meeting, to be referred to during the meeting, was mentioned by Napier and Gerschenfield (1993) when discussing preparations that should be made before a meeting. However, they did not mention that this information should be sent in sufficient time prior to the meeting. This point was included in B3.

The next section examines guidelines, which were proposed to be put into practice during a face-to-face meeting.

9.3.1.2 Proposed guidelines to put into practice during a face-to-face meeting

Table 9.34 presents the 17 guidelines, which were proposed for face-to-face interactions.

Guideline Number	Guideline Type
D1	Reference to terms, which are used
D2	Communicating with the team
D3	Establishing a system to identify who would like to speak next
D4	Discussing document formats
D5	Developing presentations and giving demonstrations
D6	Sharing information by using examples/showing demonstrations
D7	Making explicit requests
D8	Informing on changes
D9	Making decisions
D10	Establishing regular reporting periods
D11	Summarising information
D12	Updating on progress
D13	Consulting the agenda once everyone has arrived to the meeting
D14	Structuring the meeting
D15	Making presentation preparations
D16	Selecting a date for a next meeting
D17	Encouraging self testing

Table 9.34: Seventeen guidelines for face-to-face interactions

Literature has revealed that teams are encouraged to hold regular meetings and provide opportunities for team members to interact face-to-face (Johnson and Johnson, 1994; Boddy, 2002). However, guidelines for effective meetings (Napier and Gerschenfield, 1993) do just that and do cover procedures to structure and nurture teams once they have formed (Johnson and Johnson, 1994). The two types of guidelines can be viewed as independent. In the proposed guidelines there was evidence the two sets of guidelines were combined at times.

It was interesting to note that the procedures noted by Johnson and Johnson (1994) to structure and nurture a team did not mention how team members can ensure that they are all working together using the same terms. D1, reference to terms, which are used, reinforced the importance of everyone using the same terms in the same manner. Maintaining a project glossary was also suggested. Other literature (Scaife et al. 1994; Rogers et al. 2000) examined the difficulties of a team working together due to differences which exist, which include team members making reference to terms in different ways. D1 is particularly relevant to multidisciplinary teams.

D2, communicating with the team, did appear in the guidelines proposed by Napier and Gerschenfeld (1993) to hold effective meetings. D2 reminds team members of simple strategies, which can be employed to ensure that team members communicate with each other in an effective manner.

D3, establishing a system to identify who would like to speak next, was also not included in Napier and Gerschenfeld's (1993) guidelines. D3 encourages teams to introduce a system for communicative purposes. Introducing a system can be beneficial for teams which have members with a visually impairment, as those members cannot rely on non-verbal forms of interactions to provide them with relevant information. D3 may also be put into practice when a team includes members that are either shy or feels intimidated.

D4, discussing document formats, was not related to running an effective meeting, but was relevant to teamwork. D4 brought to attention, informing the team if you have a request to receive documents from other members in a particular format. Johnson and Johnson (1994) did not include this point as part of their guidelines on working together in a team.

D5, developing presentations and giving demonstrations, was relevant to running an effective meeting (Napier and Gershcenfeld, 1993) and working in a team (Johnson and Johnson, 1994). Looking at the first point, running an effective meeting, shows that some of the items which were proposed in D5, help to remind team members of the presentation and/or demonstrations purpose. Those guidelines by Napier and Gershcenfeld did not explicitly focus on ensuring successful presentations and demonstrations as part of the meeting, focussing more specifically on the design of an effective meeting. Johnson and Johnson did not focus on this point in their guidelines.

D6, sharing information by using examples/showing demonstrations, included more specific detail, which is linked to bringing together the resources that teams need to function (Johnson and Johnson, 1994). Napier and Gershcenfeld (1993) using the work of (Frank, 1989) for meetings reported that visual aids of any kind can be an important addition to any meeting, as pictures can be comprehended instantly. D6

does not just focus on visual aids that only consist of pictures, but includes more interactive features, such as demonstrations.

D7, making explicit requests, was not included as part of the procedures listed by Johnson and Johnson (1994) on how to structure and nurture a team once it has formed. D7 however is relevant to teamwork, and suggests that making an explicit request encourages information to be received that meets the needs of who requested it.

D8, informing on changes, was related to teamwork and not on how to run an effective meeting. However, Johnson and Johnson (1994), did not mention this point in their guidelines. D8 describes that any changes should be informed to everyone and not just shared to who it concerns.

D9, making decisions was one of Napier and Gershcenfeld's (1993) theoretical and practical guideline for design improvements for a meeting. There were differences in what was proposed in D9 and what Napier and Gerschenfeld had included. Napier and Gershcenfeld had highlighted the importance of setting rules for decision making and to record all the decisions. D9 however stressed the importance of the team making a decision, and not just one or two individuals, particularly those that may be dominating. Napier and Gerschenfeld when viewing meetings from an international perspective also looked at the decision making process. This process included vote, vocal assessment and consensus. Consensus was the most relevant to what was proposed in D9. Napier and Gerschenfeld referred to consensus as an effort to come to a common agreement, where discussions would continue until a common agreement was reached. Napier and Gerschenfeld referencing, Olsson, (1985), informed everyone that no decisions could be reached without the unanimous consent of all of the participants. Further, this consensus has to be reached through the involvement of all.

D10, establishing regular reporting periods, was not explicitly included as either a guideline or procedure to follow for structuring or nurturing a team. Johnson and Johnson (1993) however did include having regular face-to-face meetings. D10 was proposed to show the importance of establishing a regular reporting period for teamwork, which takes place over a long period of time. Other forms of interactions can then follow up reporting. In this case it is e-mail communication, as face-to-face meetings are difficult to organise, and expensive for team members to attend, especially when the team in question is dispersed.

D11, summarising information, included points made by Napier and Gershcenfeld (1993). However, Napier and Gershcenfeld only encouraged teams to offer summaries before ending a meeting and not throughout. According to Napier and Gershcenfeld, summaries at the end of a meeting are important to see what happened at that meeting, and to check to make sure that all the participants concur. Decisions made, issues raised, unfinished business, next steps agreed upon, and follow up arrangements made are all examples of what can be included in a summary. D11 includes having a summary provided at the end of a meeting, but also encourages summaries after each section and/or demonstration. Reminding the team of what will be discussed during a second day of a two-day meeting was included in D11 as well.

D12, updating on progress, was included by Johnson and Johnson (1994) in ways to structure and nurture a team once it has formed. According to Johnson and Johnson measuring results and establishing early

successes can help a team to congeal. D12 reinforces the importance of providing an update on progress that has been made since a previous meeting. Team members should also be reminded that progress does not always have to be successful. Boddy (2002) also encourages a group to hold regular meetings, for example, once a week, at which all interested parties are present. Although meetings are commonly used for strategy and planning, Boddy shows that they can also be used to keep everyone up-to-date with the progress of each others' work. According to Boddy's experience, if meetings are kept short, people do not see them as a chore, turn up, stay on the subject and enhance productivity. Boddy, also emphasises the importance of keeping sub-groups informed on each others progress.

D13, consulting the agenda once everyone has arrived to the meeting, was relevant to the work of Napier and Gershcenfeld (1993), as they encouraged agendas to be used during a meeting, especially to indicate whether those items were for discussion, decision, or information sharing only. Observations by Boddy (2002) have shown that to control a meeting effectively, team members should be asked at the beginning of their meeting if there is anything that they would like to add to the agenda. D13 included Boddy's observation that members at the beginning of the meeting should be asked if there were items that they would like to add to the agenda.

D14, structuring the meeting, was included in Napier and Gershcenfeld's (1993) guidelines to consider during a meeting. Requesting and encouraging additional items and then to prioritise the new agenda items with the group is what Napier and Gershcenfeld said in their guidelines. D14 encourages team members to propose changes to the agenda as they see the need.

D15, making presentation preparations, was not included in the procedures and guidelines suggested by Johnson and Johnson (1993). However, Johnson and Johnson did include that the team should be exposed to new facts and information, as this can help teams redefine and enrich its understanding of its mission, purpose and goal. This was a relevant point, although not explicit to what had been covered in D15. D15 incorporated elements suggested by Johnson and Johnson but in the context of offering support to the team, after you have observed a presentation and/or demonstration that did not meet your expectations.

D16, selecting a date for a next meeting was surprisingly not included as part of the guidelines for running an effective meeting by Napier and Gershcenfeld (1993). However, Napier and Gershcenfeld did state that before ending the meeting, the leader should identify agenda items for the next meeting. But selecting a date for the next meeting was not included as part of that description – identifying agenda items for the next meeting. As reaching consensus can be difficult, especially when seeking to find a date and time that is convenient to the whole team, this activity is encouraged to take place whilst the team is still together face-to-face, as described in D16. Although this type of activity can be difficult to follow up by e-mail, it would be time consuming.

D17, encouraging self-testing, was also surprisingly not included as part of the guidelines or procedures for structuring and nurturing teams. Johnson and Johnson (1993) did however raise the importance of bringing together the resources that the team would need to function. D17 encourages team members to self-test information.

The next section examines guidelines, which were proposed to be put into practice after a face-to-face meeting when communicating with the team by e-mail.

9.3.1.3 Proposed guidelines to put into practice after a face-to-face meeting

Table 9.35 presents the 18 guidelines, which were proposed for e-mail interactions.

Guideline Number	Guideline Type
A1	Circulating information to the entire team
A2	Monitoring reporting periods to the team
A3	Keeping team members up to date with whom they are working with
A4	Project glossary
A5	Informing with your plans before starting on work/giving a summary of what has been achieved
A6	Starting on work earlier than planned
A7	Circulating draft documents
A8	Summarising changes
A9	Sharing relevant information to members of the team
A10	Sharing information with people outside of the team
A11	Producing reports
A12	Document formats
A13	Notification of new documents
A14	Circulating meeting minutes
A15	Informing on non-working periods
A16	Next meeting
A17	Encouraging self-testing
A18	Storing relevant documentation

Table 9.35: Eighteen guidelines for e-mail interactions in between a face-to-face meeting

Literature has revealed that teams often use e-mail to stay in contact with its members (Alexander, 2002; Ducheneaut and Bellotti, 2003). Tips are also provided to composers of e-mail messages on how to write effective messages (Wallace and Wingate, 2000) and protocols have been proposed for global software teams (Carmel, 1999). However, very few guidelines actually concentrate on what an e-mail message should include when communicating with the team. In addition, the literature on meetings did not specify that only e-mail can be used to follow up interactions with team members.

A1, circulating information to the team, was included in Brown and Dobbie's (1999) guidelines to support teams to organise their work. A1 proposed a mailing list address to ensure that messages were sent to the team in a way that did not require individual e-mail addresses to be entered. For the mailing list to be effective, it must be regularly updated.

A2, monitoring the reporting period, was proposed to show how e-mail could be used after a face-to-face meeting. This guideline was related to D10, establishing regular reporting periods, which could be put into practice during a face-to-face meeting. Existing guidelines did not include this. Literature on teamwork (Johnson and Johnson, 1993; Katzenbach and Smith, 1993) however did raise the importance of allowing teams to measure their progress and focus on getting results.

A3, keeping team members up to date with whom they are working with, was not found reported either in the context of procedures or guidelines to follow when sending e-mail messages to the team, or insights into how e-mail is used by a team to communicate. A3 is also a reminder to team members that they do not have to wait until a face-to-face meeting to share information with the team.

A4, project glossary, was related to D1, reference to terms, which are used. D1 suggested a glossary to allow all team members to use terms in a similar way. No guideline was found which focussed on this aspect in terms of sending an e-mail message.

A5, informing with your plans before starting on work/giving a summary of what has been achieved, was also not found in existing guidelines on sending e-mail messages. Johnson and Johnson (1994) in the context of teams, hinted at the importance of each team member being clear about what they were accountable for in that team. A5 shows how the team can be kept informed in between face-to-face meetings on work related activities and achievements.

A6, starting on work earlier than planned; A7, circulating draft documents and A8, summarising changes were also not found reported as existing e-mail guidelines, or as part of Johnson and Johnson's (1994) procedures and guidelines for teamwork. A9, sharing relevant information to members of the team, was included by Johnson and Johnson as part of one of their procedures to structure and nurture a team once it had formed. More specifically, Johnson and Johnson encouraged teams to expose new facts and information that could help them to redefine and enrich its understanding of its mission, purpose and goals. Guidelines on using e-mail did not consider what was included in A9.

A10, sharing information with people outside of the team, was not included by Johnson and Johnson (1994) amongst their procedures and guidelines for teamwork. However, Boddy (2002) does recognise that group members depend on information and ideas from others to help them perform the group task.

A11, producing reports; A12, document formats and A13, notification of new documents were also not included by Johnson and Johnson (1994) amongst their procedures and guidelines for teamwork. According to Boddy (2002) reports are produced to reflect on progress. A12 is also important as Duchenaut and Bellotti (2003) have said based on previous work (Bellotti and Smith, 2000), e-mail has become one of the primary document delivery mechanisms for office workers using personal computers.

A14, circulating meeting minutes, was part of Napier and Gerschenfeld's (1993) guidelines on what should be done after a meeting. Napier and Gerschenfeld said that concise minutes should be completed and distributed within a day or two after the meeting. Meeting minutes are not only useful as a reminder, but to identify follow up mechanisms as well. Boddy (2002) also included this point as well, based on his observations on how to allow team members to control their meetings effectively. According to Boddy, minutes should be prepared quickly, preferably on the same day and circulated to the team immediately. Boddy also says that the minutes should show what action steps were agreed and who will be responsible. A14 also added the need to refer to actions of previous minutes and to circulate minutes of meetings that would be of relevance to the team, even where the whole team may not have been present. This last point is of particular importance for a dispersed team.

A15, informing of non-working periods, was not included by Johnson and Johnson (1994) amongst their procedures and guidelines for teamwork. A15 hopes to overcome the problem, failure to communicate contextual information, where team members do not communicate information about their own context and constraints to their remote partners as identified by Cramton (2001). Cramton's data collection included e-mail messages, but this problem was not just constrained to e-mail messages.

A16, next meeting, was not included as an action point after attending a face-to-face meeting by Napier and Gerschenfeld (1993). A16 informs team members of the next meeting date. This can be useful for those not present during the meeting, but also to act as a reminder for those that were present at that meeting where this was discussed. A16 also included some additional information that is relevant to the subject of discussing the next meeting.

A17, encouraging self-testing, was proposed to show how e-mail could be used to continue with what was proposed during a face-to-face meeting. This guideline was related to D17, also called encouraging self-testing.

Johnson and Johnson (1994) did not explicitly state what was proposed in A18, storing relevant documentation, although hinting at this issue, when discussing forming a team. More specifically, Johnson and Johnson had said that it was important to bring together the resources that a team would need to function. A18 proposed the use of a file transfer protocol, or equivalent, to store information of relevance to the team, in one central store, that can allow team members to efficiently access that information. Brown and Dobbie (1999) who extracted guidelines to support team dynamics from their analysis stated that their students found the webpage, which was used to store and access documents valuable.

Overall, this section compared the proposed guidelines with existing guidelines and literature. There appeared to be overlap between what was reported in existing literature on guidelines for teamwork and meetings, than sending e-mail messages to the team. This was a surprising finding, as e-mail has become a popular communication tool. However, existing work did not extract what the contents of a message should include, only protocols and guidelines for writing and sending a message.

The next section examines how the guidelines were put into practice, from the team members point of view and that observed by other team members.

9.3.2 Guidelines put into practice by team members and observed put into practice by other team members

There were few differences amongst guidelines, which team members had interpreted as putting into practice and those observed by other members of that team. The first set of differences to be examined is from meeting one, expectations of team members category.

9.3.2.1 Meeting one, expectations of team members category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figures 9.1 and 9.2 are referred too.

D1, reference to terms, which are used, was the first difference that was observed. According to Julie, she had observed all team members put into practice this guideline. Table 9.8 showed Michelle stating that she did not put into practice D1 as "it was not her place to". From the researchers perspective, she did not observe team members using terms differently during this meeting. Martin did introduce a glossary of terms that were being used, but this was for terms in the course design and not project terms.

As Julie had provided a retrospective account of D1 for team members that she had observed put D1 into practice, this may have been why there was a difference between her and Michelle's points of view. In addition, from the researchers perspective, D1 was not put into practice as intended. Although consistency in terms was necessary, these were for the course and not project terminology, as evident through the introduction of the glossary for the former and not latter.

D3, establishing a system to identify who would like to speak next was the next difference to be observed. According to figure 9.1 and table 9.8, there were no team members who had said that they had put into practice this proposed guideline. However, in figure 9.2, Diane had said that she had observed another team member put into practice D3. In table 9.8, Diane had reported that this person was Holly. According to figure 9.1, Holly did not self-reflect that she had put into practice D3. This may have been because Holly did not feel that she had followed what was included in the description of D3. From the researchers point of view, D3 had not been explicitly put into practice by any of the team members. However, Holly, the chair did acknowledge when team members wanted to take the next turn to speak, despite there being no evidence that a system to suit team members needs had been introduced. There were no team members who were either visually impaired and/or blind in this team or evidence of any one member who dominated this meeting.

D4, discussing document formats, also showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.1, only three team members, Julie, Diane and Michelle had put into practice D4. However, in figure 9.2, according to Julie, everyone in the team had put into practice D4. From the researchers perspective D4 had not been applied in the manner imposed in the guideline description. As stated by Julie in table 9.8, the team was referring to the document format as a product, and not as a file type.

D5, developing presentations and giving demonstrations, also showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.1, no team members had put into practice D5. However, in figure 9.2, according to Holly, Martin had put D5 into practice. In table 9.8, Holly, however, reported that this guideline was too formal. Martin had also said that he had observed D5 put into practice, but he did not reveal that it was by himself. From the researchers perspective D5 had not been put into practice as stated in the description. However there was evidence of team members giving presentations, but using no textual aids. Only a text book which everyone had access too was referred to sometimes during the meeting.

D6, sharing information by using examples/showing demonstrations, also showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.1, everyone apart from Michelle had put into practice D6. However, according to Julie in figure 9.2 everyone had put D6 into practice. In table 9.8, Michelle had said that there was no need for her to refer to examples. From the researchers perspective, Michelle had not put D6 into practice, as suggested by Julie. It was also acknowledged that this guideline was too formal, as reported by Holly.

D7, making explicit requests, also showed differences in what the same team member had reported. According to figure 9.1, Diane had not put into practice what was included in this guideline. This was

not consistent with what was included in table 9.8. From the researchers perspective, everyone put into practice D7.

No judgements can be made on whether D8, informing on changes, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.1, Diane, Martin and Julie had put D8 into practice. However, figure 9.2 did not show any graphical representation for D8 as Julie, Martin and Diane, had not provided the names of who they had observed put D8 into practice. From the researchers perspective there were not many changes that the team had been informed about.

Again, no judgements can be made on whether D10, establishing regular reporting periods, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.1, all team members had put D10 into practice. However, figure 9.2 only showed that Martin and Julie had put D10 into practice as observed by Holly. Julie, Martin, Michelle and Diane did not write down the names of team members that they had observed put D10 into practice. From the researchers perspective, D10 had not been put into practice, in the way suggested in this guideline. It appears that the team already had a schedule, which they were working towards. At this meeting, Michelle had brought a Gantt chart related to the course team, but everyone did not have copies of this, so it is not known if this material had been previously distributed to members of this team.

Again, no judgements can be made on whether D11, summarising information, showed differences in which team members put into practice this guideline and those observed by other members of the team.

Figure 9.1, showed that Holly and Julie had put into practice what was included in D11. Table 9.8 confirmed this as well. However, figure 9.2, displayed no graphical representation as Martin, Julie and Diane had not provided any names. From the researchers perspective, only Holly had put into practice D11. This was mainly witnessed at the end of the meeting, and not after individual contributions by team members. It was also interesting to read that Michelle in table 9.8, had said that she would action this by e-mail, as meeting minutes were included as a separate guideline.

D12, updating on progress, showed differences in which team members put into practice this guideline and those observed by other members of the team. Figure 9.1, showed that only three members of the team, Holly, Julie and Martin had put into practice D12. However, in figure 9.2, Holly had said that she had observed everyone put into practice what was included in D12. Martin and Diane, however, did not provide names of what team members they had observed put into practice D12. For this reason no graphical representation could be produced. Although this was the first meeting attended by the researcher, it appears that the team members had meetings with each other in the past. In this meeting, there was evidence that the team members informed one another of the progress that was made in their area of work.

The next section looks at the differences in the planning and structuring guidelines.

9.3.2.2 Meeting one, planning and structuring category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figures 9.3 and 9.4 are referred to.

D13, consulting the agenda once everyone has arrived to the meeting, was the first difference that was observed. According to figure 9.3, only Julie and Martin had put into practice D13. This was consistent with what was reported in table 9.10. However, in figure 9.4, Julie had said that she had observed all team members put into practice D13. From the researchers perspective D13 was put into practice as the agenda was consulted at the meeting. However, there were no changes established to this agenda, during the face-to-face meeting that had been circulated in advance of the meeting.

D14, structuring the meeting, was the next difference to be observed. According to figure 9.3, only Martin had put into practice D14, and table 9.10 had confirmed this. However, table 9.10 was interesting, as Michelle had reported that Holly, the chair undertook what was included in this agenda. This was not shown in figure 9.3. Also, figure 9.4 displayed no graphical representation of D14 as Martin, Michelle and Diane had not included the names of which team members that they had observed put D14 into practice. From the researchers retrospective account of events and based on the hand-written notes, it was not clear whether or not D14 had been put into practice or whether other members of the team had been observed put D14 into practice.

D16, selecting a date for a next meeting, in figure 9.3, shows that only Diane did not put into practice D16. Table 8.10 listed that Diane felt that this was usual team practice. However, in figure 9.4, according to Julie, all team members had put D16 into practice. From the researchers perspective all team members had put D16 into practice. It was not known if this date had already been pre-arranged, and at this meeting the team was simply reminded of that date. This claim was made as no negotiation was observed and team members did not say that they could not attend the date of the next meeting.

The next section looks at the expectations of team members category after the first meeting when communicating with the team by e-mail.

9.3.2.3 After meeting one, expectations of team members category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figures 9.5 and 9.6 are referred too.

No judgements can be made on whether A1, informing on changes, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, all team members had said that they had put A1 into practice. However, figure 9.6 did not show any graphical representation for A1, as names of the members that had been observed were not provided. From the researchers perspectives A1 was not put into practice, as a mailing list was not created. In this team's situation, a mailing list may not have been appropriate, as it was only a five-person team. However, there was evidence that messages were sent to the team by both including team members in on messages sent to the team, and copied to the team as well, using the CC feature.

A2, monitoring reporting periods to the team, also revealed differences. According to figure 9.5, Michelle had said that she had put A2 into practice, however figure 9.6 did not show any graphical representation, as names of the team members that had been observed were not provided. Figure 9.6 showed that Michelle had reported observing another team member put what was included in A2 into practice, but did not state that this person was herself. Despite this, table 9.18 did show Holly reporting that this was Michelle's job, and was actioned face-to-face and not by e-mail. From the researchers perspective, A2 was not put into practice, as this team had not explicitly decided on a regular reporting period with its team members.

A3, keeping team members up to date, with whom they are working with, also revealed differences. According to figure 9.5, no team members had put into practice A3. However, the textual summary for figure 9.6, showed that Julie and Diane had reported that they had observed other team members put into practice A3. No names were provided, so a graphical representation could not be displayed in figure 9.6 for A3. From the researchers perspective, A3 was not explicitly put into practice, as there were no changes in the team itself. The team was informed in advance, by e-mail, that the assessor was going to be present at the next meeting. Team members were aware of this information at the first face-to-face meeting as well.

No judgements can be made on whether A4, project glossary, showed differences in which team members had put into practice this guideline and those observed by other members of the team. According to figure 9.5, only Michelle had said that she had put A4 into practice. However, figure 9.6 did not show any graphical representation for A4, as names of the members that had been observed were not provided. Despite this, Holly, Diane, Julie and Michelle had said that they had observed other team members put A4 into practice, but no names were provided. From the researchers perspective, A4 was not put into practice, as a glossary for project terms was not created and maintained. During the face-to-face meeting, the glossary, which was referred to in D1, was looking at course terms and not project terminology.

No judgements can be made on whether A5, informing with your plans before starting on work/giving a summary of what has been achieved, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Holly, Julie and Michelle had said that they had put A5 into practice. However, figure 9.6 did not show any graphical representation for A5, as names of the members that had been observed were not provided. Despite this, Holly, Diane, Julie and Michelle had said that they had observed that other team members put A5 into practice. From the researchers perspective, A5 was not put into practice. At the first meeting, following the overview given by team members, each member of the team was aware of what work was to be actioned and by who. There was no evidence that this was followed up by e-mail.

A6, starting on work earlier than planned, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, no team members had put into practice A6. However, figure 9.6, did not show any graphical representation for A6 as names of the members that had been observed were not provided. However, Holly and Diane had observed that another team member put A6 into practice. From the researchers perspective, it is not

known whether or not team members put A6 into practice, as Gantt charts for planning were not made available to her.

No judgements can be made on whether A7, circulating draft documents, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Julie and Martin had said that they had put A7 into practice. However, figure 9.6 did not show any graphical representation for A7, as names of the members that had been observed were not provided. Despite this Julie and Martin had said that they had observed other team members put A7 into practice. In addition, Michelle did not report that this was herself. From the researchers perspective, A7 was not put into practice explicitly. The only document to be circulated to the team was the agenda for the next meeting. As team members were still working on their areas, and some had not yet started work on this, may have resulted in why A7 could not be put into practice. However, there was evidence of the team sharing draft documents and progress during the face-to-face meetings.

A8, summarising changes, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Holly had put A8 into practice. Figure 9.6 did not display any graphical representation for A8, as names of the members that had been observed were not provided. Holly did report that she had observed another team member put A8 into practice, but did not mention that it was herself. No other team members had provided information. From the researchers perspective A8 was not put to practice as it was related to A7, and there was no evidence of receiving by e-mail different documents versions.

A9, sharing relevant information to members of the team, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Holly, Julie and Michelle had put A9 into practice. Figure 9.6 did not display any graphical information for A9, as names of the members that had been observed were not provided. Despite this Holly, Julie, Martin and Michelle had observed that A9 was put into practice. Martin was the only team member who did not put A9 into practice himself. Holly, Julie and Michelle did. From the researchers perspective there was evidence that A9 was put into practice.

A10, sharing information with people outside of the team, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Holly and Michelle had put A10 into practice. However, figure 9.6 showed that it was Julie who was observed that had put A10 into practice, according to Martin. This was interesting as table 9.18 showed Julie reporting that she did not put into practice A10, as it was irrelevant to their situation. From the researchers perspective, the only information that she is aware that was shared with people outside of this team was a separate set of minutes, which were circulated after the second face-to-face meeting, which was attended by the assessor.

A11, producing reports, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Michelle had put into practice A11. However, figure 9.6, did not have any graphical representation for A11, as names of the members that had been observed were not provided. Despite this Diane did observe another team member put into

practice A11. From the researchers perspective A11 was not put into practice, as there was no evidence from the messages that were sent to the team, to suggest that a report was produced.

No judgements can be made on whether A12, document formats, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, Julie and Martin had said that they had put A12 into practice. However, figure 9.6 did not show any graphical representation for A12, as names of the members that had been observed were not provided. Diane, Julie and Martin did however report that A12 was observed put into practice by other team members. From the researchers perspective A12 was not put into practice as team members during the face-to-face meeting did not identify any requests for receiving documents in a particular format. This last point was also included in D4, discussing document formats.

A13, notification of new documents revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.5, no team members had said that they had put into practice A13. Figure 9.6 did not show any graphical representation for A13, as names of the members that had been observed were not provided. However, Diane did report that she had observed another team member put A13 into practice. From the researchers perspective A13 was put into practice by Michelle when she informed the team that the minutes for the meeting were included in the central store, and provided a URL to direct you to it.

The next section looks at the differences in the planning and structuring guidelines.

9.3.2.4 After meeting one, planning and structuring category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figures 9.7 and 9.8 are referred too.

A14, circulating meeting minutes, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.7, Holly and Julie had put into practice A14. However, according to figure 9.8, Michelle had put A14 into practice, as reported by Martin. This was interesting as table 9.20 included that Julie did not feel that this was her area of responsibility. In table 9.20, Michelle did however acknowledge that she was late sending out the minutes of the meeting. From the researchers perspective, Michelle had put A14 into practice.

A15, informing on non-working periods, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.7 Julie, Martin and Michelle had put A15 into practice. However, figure 9.8 showed that everyone was observed putting into practice A15, as witnessed by Martin. This was interesting, as in table 9.20, Holly had said that she did not have any non-working periods. From the researchers perspective A15 was put into practice by some team members although not explicitly. This is because they made reference to continuing on work after a break, informally suggesting that this would be their non-working period. There was evidence of non-working periods being discussed during the face-to-face meetings.

No judgements can be made on whether A16, next meeting, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure

9.7, Holly and Julie had put A16 into practice. However, figure 9.8, showed that only Holly had been observed putting A16 into practice by Martin. Julie and Diane had also observed that A16 had been put into practice, but did not include the names of those team members. From the researchers perspective A16 was put into practice, but only when attaching the agenda for the meeting and minutes of the previous meeting. There may have been no need to send a separate reminder for the next meeting, as everyone who was going to attend it were aware of it from their previous meeting.

B1, circulating a draft agenda, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.7, Holly and Michelle had put B1 into practice. However, according to figure 9.8, only Martin had named Holly. All other team members also stated that they had observed that this guideline was put into practice but did not include the names of those team members that they had observed. From the researchers perspective B1 was put into practice. Michelle had circulated the agenda to the team, but sought comments from Holly prior to this activity.

No judgements can be made on whether B3, sending documentation(s) before a meeting, to be referred to during the meeting, showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.7, Holly and Michelle had put B3 into practice. Figure 9.8 did not provide any graphical representation for B3 as names of the members that had been observed were not provided. Only, Holly and Martin had reported that B3 was observed put into practice by another team member. From the researchers perspective B3 was not put into practice. The only information, which was circulated before the meeting, was the agenda, and no other specific documentation that was going to be referred to during the meeting.

The next section looks at the differences in the technology guidelines.

9.3.2.5 After meeting one, technology category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figure 9.9 is referred too.

No judgements can be made on whether A18, storing relevant documentation showed differences in which team members put into practice this guideline, and those observed by other members of the team. According to figure 9.9, Julie, Martin and Michelle had said that they had put A18 into practice. However, when team members were asked to inform what team members that they had observed put into practice A18, only Julie and Diane had responded, but did not provide any names. For this reason there was no graphical representation for A18. From the researchers perspective A18 was not put into practice. As no formal presentations were delivered during the face-to-face meeting, this information was not included in the central store. There was however, evidence of meeting minutes being placed on it, and Michelle numbering those documents to make it easier for team members to retrieve them.

The next section examines the expectations of team members category at the second meeting.

9.3.2.6 Meeting two, expectations of team members category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figure 9.10 and the textual summary in 9.2.3.1 are referred to.

D2, communicating with the team, was interesting as figure 9.10 and the textual summary at the end of section 9.2.3.1 showed that the same team members (Holly, Julie, Diane and Michelle) had identified that they had put D2 into practice, and had observed other team members put D2 into practice as well. However, Holly, Julie, Diane and Michelle did not give names of team members. From the researchers perspective there was no need for team members to put D2 into practice. Everyone during this meeting spoke loudly and clearly at all times and no requests to speak louder was made by any members of the team. No equipment was used, no translators were present in the meeting and team members were not closely sat together, encouraging informal discussions to take place whilst someone else was talking.

D3, establishing a system to identify who would like to speak next, revealed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, no team members had put into practice D3. However, the textual summary at the end of section 9.2.3.1 showed that Diane had observed another team member put into practice what was mentioned in D3, however, no name was provided. From the researchers perspective, team members acknowledged when others wanted to take the next opportunity to speak by monitoring non-verbal cues. This was also true for when the assessor attended this meeting as well.

No judgements can be made on whether D4, discussing document formats showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Julie had said that she had put D4 into practice. However, when team members were asked to inform what team members that they had observed put into practice D4, Julie, Michelle and Diane had responded, but did not provide any names. From the researchers perspective D4 was not put into practice in the manner intended, i.e. talking about document formats. The assessor was also not asked if she had a preference for receiving documents in a certain format. Following this meeting, the assessor received the meeting minutes in a Microsoft Word document.

No judgements can be made on whether D5, developing presentations and giving demonstrations showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Diane had said that she had put D5 into practice. However, when team members were asked to inform what team members that they had observed put into practice D5, Michelle and Diane responded, but did not provide any names. From the researchers perspective D5 was not explicitly put into practice, as the presentations were informal in nature.

No judgements can be made on whether D6, sharing information by using examples/showing demonstrations showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Julie, Martin and Diane, had said that they had put D6 into practice. However, when team members were asked to inform what team members that they had observed put into practice D6, only Julie and Holly had responded, but did not provide any names. From the researchers perspective D6 was not explicitly put into practice as the presentations were

informal in nature and visual aids were not used. Those presentations, which were delivered, were using voice and making reference to a set course book.

No judgements can be made on whether D7, making explicit requests showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Holly, Julie and Diane, had said that they had put D7 into practice. However, when team members were asked what team members that they had observed put into practice D7, Michelle, Julie, Diane and Holly had responded, but did not provide any names. From the researchers perspective D7 was put into practice.

No judgements can be made on whether D8, informing on changes showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, all team members had put D8 into practice. However, when team members were asked to inform what team members that they had observed put into practice D8, Michelle, Julie, Diane and Holly had responded, but did not provide any names. From the researchers perspective D8 was put into practice.

No judgements can be made on whether D9, making decisions showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Holly, Julie and Diane had put D9 into practice. However, when team members were asked to inform what team members that they had observed put D9 into practice, Michelle, Julie, Diane and Holly had responded, but did not provide any names. It was interesting to note that Michelle and Martin did not feel that they had participated in making decisions. From the researchers perspective D9 was put into practice.

No judgements can be made on whether D10, establishing regular reporting periods showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Holly, Diane and Michelle had put D10 into practice. However, when team members were asked to inform what team members that they had observed put into practice D10, Michelle and Diane had responded, but did not provide any names. From the researchers perspective D10 was not put into practice, as this was not a subject of discussion during this meeting.

No judgements can be made on whether D11, summarising information showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, Holly and Julie had put D11 into practice. However, when team members were asked to inform what team members that they had observed put into practice D11, Holly, Julie and Diane had responded, but did not provide any names. From the researchers perspective D11 was not explicitly put into practice. Although summaries were offered, they were often towards the end of the meeting, and not after each contribution from the team members as this guideline had encouraged.

No judgements can be made on whether D12, updating on progress showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.10, all team members had put D12 into practice. However, when team members were asked to inform what team members that they had observed put into practice D12, Holly, Julie and Diane had

responded, but did not provide any names. From the researchers perspective D12 was put into practice. This information was not only of benefit for the team, but to the assessor who had attended this meeting as well.

The next section looks at the differences in the planning and structuring guidelines.

9.3.2.7 Meeting two, planning and structuring category

To identify the differences amongst the guidelines put into practice by team members and observed put into practice by other team members, figure 9.11 and the summary in 9.2.3.2 is referred to.

No judgements can be made on whether D13, consulting the agenda once everyone had arrived to the meeting showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.11, Holly and Julie had put D13 into practice. However, when team members were asked to inform what team members that they had observed put into practice D13, Holly and Julie had responded, but did not provide any names. The remaining team members did not provide any information either. From the researchers perspective D13 was put into practice.

No judgements can be made on whether D14, structuring the meeting showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.11, Holly, Julie, Martin and Diane had put D14 into practice. However, when team members were asked to inform what team members that they had observed put into practice D14, Michelle and Julie had responded, but did not provide any names. The remaining team members did not provide any information. From the researchers perspective D14 was put into practice, and was enforced by Holly, the chair of that meeting. Table 9.29, also mentioned that the chair should be responsible for this action by Michelle and Diane.

No judgements can be made on whether D16, selecting a date for a next meeting showed differences in which team members put into practice this guideline and those observed by other members of the team. According to figure 9.11, Holly and Diane had put D16 into practice. However, when team members were asked to inform what team members that they had observed put into practice D16, Holly and Diane had responded, but did not provide any names. The remaining team members also did not provide any information. From the researchers perspective, D16 was put into practice.

The next section looks at promoting mutual understanding in teamwork.

9.3.3 Promoting mutual understanding in teamwork

As chapter 2 has shown mutual understanding in the context of teamwork is not widely studied, and diversity is considered the core of the problem of mutual understanding (Pohl and Jacobs, 1994). Pohl and Jacobs discussed diversity in terms of different disciplines contributing different knowledge, information, and experiences to teamwork. This investigation examined how a multidisciplinary team who had a common goal worked together to achieve mutual understanding by monitoring this evolution on a moment-by-moment-basis. The empirical data was analysed by applying the re-definition for mutual

understanding proposed in chapter 3. Based on the empirical data, 38 guidelines were presented in chapter 8 to promote mutual understanding in multidisciplinary teamwork, during team interactions.

A large proportion of the guidelines which were derived from applying the re-definition for mutual understanding to data collected from a multidisciplinary team, illustrate that what was proposed in the previous chapter has been covered in existing issues that are dealt with in terms of teamwork literature, but not necessarily in the context of mutual understanding. This insight was interesting as it showed that to promote mutual understanding in teamwork, team members are not required to introduce a large number of new practices, but for team members to be reminded through guidelines what they should be doing to promote mutual understanding in their team, no matter how simple the guidelines may appear.

Results of this validation exercise have shown that team members often reported that those guidelines were not really appropriate for small sized teams. According to Katzenbach and Smith (1993) a small team is anywhere from two to 25 members, with between five and nine as manageable and optimal. This is because if the number goes above nine, communication tends to become centralised, team members do not have an adequate opportunity to speak to each other and extra time and effort is required to ensure good communication. Not only was the size of the team mentioned in this exercise, but the fact that working with team members that you have worked with in the past may also influence how many guidelines are appropriate to that team's situation. This is because team members can become comfortable with what they are doing and who they are working with. The amount of time that you have been working with that team may also influence how many guidelines team members put into practice. Team members also reported that information that becomes part of the group's tacit knowledge does not require explicating further.

However, not all cases where information, which becomes part of the groups tacit knowledge is put into practice by team members. This was evident in some of the empirical data collected from the project, which was the case study for this investigation. By putting into practice what has been included in the proposed guidelines, hope to promote mutual understanding when team members are working together as part of a team. Although all guidelines were not novel, it is important to remind ourselves through guidelines what processes should be put into practice, no matter how simple they may appear. By issuing everyone in the team with guidelines, it is hoped that when those guidelines are not put into practice and where they may be relevant, team members inform the team and take relevant action. As the guidelines draw on insights such as having team members with a disability in your team, different nationalities and disciplines all working together on a common goal, they aim to inform anyone who has not worked as part of a team with this type of make up, what team members can do to promote mutual understanding during their interactions together when working towards a common goal.

The next section concludes this chapter.

9.4 Conclusion

38 guidelines in chapter 6 were produced with the intention that any team that is working together towards a common goal could apply them, and not to just reflect the activities and interactions of the

European research project team which was the case study for this project. Context also determined which of the proposed guidelines team members put into practice.

A multidisciplinary team of five from an established academic institution who was developing a course and had been working together for at least two years was asked to validate the proposed guidelines. Working with members of the same team over a long period of time shows that many of the things, which were included in the proposed guidelines, were automatically put into practice by such a team. Members of this team also reported that the guidelines reminded them of items that were often taken for granted and not thought about.

The results of this validation have found that a small team that works well together puts into practice the suggestions in the guidelines automatically, as reported by team members and witnessed by the researcher. The results further suggested that the guidelines would be useful to remind teams of good practice and may serve a use as a checklist. This checklist may be particularly beneficial for teams that are new and have not yet established their routine.

The next chapter concludes this thesis.

Chapter 10

Conclusion and Future Work

Chapter 10: Conclusion and Future work

In the preceding chapters, the thesis has examined mutual understanding in the context of teamwork. This chapter summarises the thesis, reflects on the contributions made, examines the limitations encountered and makes suggestions for future work.

10.1 Thesis summary

This thesis provides a re-definition for the term mutual understanding based on Brennan's (1990) definitions of mutual understanding and using one set of data from the investigation reported in this thesis. To monitor the evolution of mutual understanding states and sub-states were characterised following the same process used to provide a re-definition for mutual understanding. To analyse the empirical data which was collected, the re-definition for mutual understanding and the characterised states and sub-states which were applied to it. This thesis provides a detailed insight into one case study, presenting the evolution of mutual understanding in one multidisciplinary project team which was used to collect empirical data for 1-year of a 27-month project. This team communicated together as a group face-to-face, once every 3-months and sent e-mail messages to the mailing list, in between each face-to-face meeting.

In chapter 1, the aims, objectives, motivations and background for conducting this investigation were described. Following from this, chapter 2 reviewed relevant literature to this investigation. This review highlighted that there was a lack of detail concerning what the term mutual understanding meant and how mutual understanding could be monitored. Few authors had defined the term mutual understanding and those that did restricted the definition to dyadic interactions. However, this investigation required a definition of mutual understanding that could be applied to a team, and not just dyadic interactions. In addition authors that had looked at monitoring mutual understanding, not only restricted their work to dyadic interactions, they did not provide a sound definition of what the term mutual understanding meant. This revelation led to the need to introduce a method to monitor the evolution of mutual understanding but in the context of teamwork.

The remaining structure of the thesis is now summarised. Chapters 3 to 9 presented the research in detail.

Chapter 3 described the development of the re-definition for mutual understanding and the methods which evolved from the process for monitoring the evolution of mutual understanding for transcript based data and e-mail messages. The re-definition for mutual understanding and the methods to monitor the evolution of mutual understanding was required to meet the first two research objectives.

1. Provide a working definition of 'mutual understanding' based on a characterisation of its essential components, and
2. Develop a method to monitor the evolution of mutual understanding within a team.

Chapter 4 described the methodology for collecting and analysing the empirical data. In this chapter a coding scheme was also developed.

Chapter 5 presented the response rates to the data collection methods described in chapter 4, and the results of how mutual understanding evolves in a multidisciplinary team that communicates together face-to-face, on a regular but far apart basis (four times in 1-year) and uses e-mail to stay in touch with the team at all other times. This was required to meet the third and fourth objective.

3. Apply the definition and method to data collected from a multidisciplinary project team to derive insight into the nature of the evolution of mutual understanding paying close attention to having blind and visually impaired team members, and
4. Provide designers and developers in CSCW the insight into how mutual understanding evolved in this particular team, which may be considered when enhancing existing products or prototyping new products.

Chapter 6 presented interesting analyses. This covered identifying different phases of group development, looking at how much time is spent on different activities, working in a multidisciplinary team and having blind and visually impaired team members.

Chapter 7 presented insights and patterns observed using chapters 5 and 6.

Chapter 8 described the guidelines which were proposed to promote mutual understanding in multidisciplinary teams based on the analysis of the empirical data from chapters 5 and 6. This was required to meet the fifth objective.

5. Interpret the insights into proposed guidelines to promote the evolution of mutual understanding in multidisciplinary teamwork.

Lastly, chapter 9 described the results of the validation exercise which was performed using a separate multidisciplinary team to show that the proposed guidelines have validity outside the original team which was used to derive those guidelines.

The remainder of this chapter discusses the overall outcomes of the research. The contributions of this research are described in section 10.2. The limitations of the research are described in section 10.3. Suggestions on future research are discussed in section 10.4. Finally, section 10.5 conclusion the whole thesis.

The next section examines contributions this investigation has made.

10.2 Contributions of this research

This research has helped to re-define what the term 'mutual understanding' means and has examined how mutual understanding can be monitored. The research has also provided a detailed insight into the evolution of mutual understanding in a multidisciplinary project team, which communicated together face-to-face and used e-mail.

Key contributions are summarised first.

10.2.1 Key contributions

This thesis has made three contributions: Definition for mutual understanding and a characterisation of how mutual understanding can be monitored, rich insights into the evolution of mutual understanding in a multidisciplinary team and proposing and validating guidelines to promote mutual understanding in multidisciplinary teamwork.

In turn this section discusses the contributions that this thesis has made. The definition for mutual understanding and a characterisation of how mutual understanding can be monitored is examined first.

10.2.1.1 Definition for mutual understanding and a characterisation of how mutual understanding can be monitored

Chapter 2 revealed that mutual understanding was a term found reported in literature, but remained one which was not well defined. Brennan (1990) was one of few authors who defined it, but looking at her definitions it was not clear whether all the mentioned constituents were required to look at mutual understanding. Brennan's definitions were also restricted to dyadic interaction. Chapter 3 in detail examined Brennan's definitions and a list of constituent parts were extracted from her definitions.

Based on examining Brennan's definitions a re-definition for mutual understanding was proposed which could be applied to teams. The re-definition for mutual understanding presented in chapter 3, synthesised Brennan's existing definition of mutual understanding and examined the ingredients necessary for the evolution of mutual understanding. Re-definitions for mutual understanding ingredients were also examined in order for those definitions to be interpreted in the manner intended by the researcher.

It is important to highlight the strength of the re-definition for mutual understanding as well. This is because this re-definition was not only based on what literature reported, one set of empirical data was also used further reinforcing why this definition provides an important contribution to the thesis.

The re-definition for mutual understanding may also apply to dyadic interactions, small sized teams and larger sized teams, as a result of size not being mentioned in the definition. Therefore, the section on re-definition for mutual understanding in chapter 3 contributed to existing literature by presenting the term mutual understanding in the context of teamwork.

Other researchers who are interested in this area can apply the researchers methods which were characterised to monitor mutual understanding. As the methods which were reported in this thesis evolved from the process to monitor the evolution of mutual understanding, the significance of the methods are highlighted and show that the method was not just proposed, but is one which has been refined, tested and applied using real data.

The methods would also allow researchers to characterise growth and no growth in mutual understanding. This may be important, particularly when examining contexts such as teamwork activities, and require identification of situations which result in growth and no growth. Analysis could then report best practices to support other teams, drawing on true-life empirical data using techniques such as grounding which is discussed in literature, and looking for evidence of mutual beliefs and common ground.

Researchers may be from a psychology background as a large amount of literature was from this area and HCI as common ground, an ingredient for mutual understanding appears frequently in this set of literature. Undergraduate and postgraduate students in Psychology and HCI may also find the method which was used useful and may choose to apply the method which emerged from the process to monitor the evolution of mutual understanding. This is because a similar type of method was not found reported in existing literature. In addition, those interested in Computer Science may like to apply the methods which have been reported in this thesis as they have an interest in mutual belief, which was one of the ingredients for mutual understanding. Lastly, those interested in teamwork and in particular design teams may find the methodology employed and the choice of data collection methods and analysis useful and may wish to apply them to their investigations.

Also, the grounding evidences in transcript based data, identified in appendices G, K, L and M, provide a rich insight into what utterances or terms provide grounding evidence based on a real-life research project. Current literature does not have a taxonomy of terms which can reveal what types of grounding evidences can be identified from the empirical data, particularly in relation to applying the characterised states and sub-states to grounding evidence to monitor the evolution of mutual understanding in face-to-face interactions. The characterised states and sub-states include the researcher seeking evidence of agreement, disagreement, holding a neutral position and reaching no agreement. In addition there were different contexts in which agreements and disagreements could be held. The sub-states which were characterised for state 1, agreement and state 2, disagreement reflects this.

Next the rich insights into the evolution of mutual understanding in a multidisciplinary team is examined.

10.2.1.2 Rich insights into the evolution of mutual understanding in a multidisciplinary team

As described in chapter 4, the project team which was used to gain an insight into the evolution of mutual understanding included several challenges: some team members with a visual disability; English not being the first language of most team members; and regular but far apart face-to-face meetings, as team members belonged to nine partner organisations from six European Union states. Such challenges led to some interesting analysis, as reported in chapters 5, 6 and 7.

Chapters 56 and 7 has shown in detail how mutual understanding evolved in the multidisciplinary project team when the team was communicating both face-to-face and using e-mail by identifying short term, medium term and long term themes. Analysis was also performed looking at the projects seven work packages. In addition transitions between different states of mutual understanding, qualitative differences in types of understanding and other interesting analyses were presented. The interesting analyses were made up of group development phases, predicting differences in different meetings, examining behaviors in different meetings, examining time, focussing on mutual understanding between different sets of stakeholders in a multidisciplinary team, working with blind and visually impaired team members, Mulder's categories or aspects and Cramton's problems. A discussion of the results was also presented and looking at patterns between the interesting analyses presented.

The next section looks at proposing and validating the guidelines.

10.2.1.3 Proposing and validating guidelines

Chapter 8 proposed 38 guidelines to promote mutual understanding in multidisciplinary teamwork. Guidelines were separated into the two forms of interactions which were the focus of this investigation, face-to-face and e-mail. Guidelines were aimed at team members, not just the manager or leader. Although some guidelines may appear to belong to particular team member roles, the 38 proposed guidelines were not characterised by role. However, situations where team members felt that it is not their role to cover what had been proposed in the guideline, the team member(s) should use the description of the guideline to notify the team of what should be actioned in order to promote mutual understanding. Not restricting guidelines to roles allows the whole team to become aware of what activities are necessary to promote mutual understanding in a multidisciplinary team. The proposed guidelines were based on the results of chapters 5, 6 and 7. It is important to bring to attention that a few guidelines proposed what action could be taken when a team includes visually impaired or blind persons. This is because the original team included some team members who were either blind or visually impaired. The proposed guidelines were interesting as they revealed that to promote mutual understanding in teamwork, team members are not required to introduce a large number of new practices, but the need for team members to be reminded through guidelines what they should be doing to promote mutual understanding in their team, no matter how simple the guidelines may appear.

A separate multidisciplinary team was used to validate the guidelines. The results of the validation exercise show that the proposed guidelines have validity outside the original team. This was true for both the face-to-face guidelines which were proposed and for interactions that continue after a face-to-face meeting using e-mail. Chapter 9 covered the validation exercise and results in detail.

The secondary contribution that this investigation has made is examined next.

10.2.2 Secondary contribution

One secondary contribution was from this investigation, providing designers and developers in CSCW with an insight into the evolution of mutual understanding in one multidisciplinary team. This contribution was self-classified by the researcher as secondary because the insights were not reported in a different form for the designers and developers, but using the same analysis which was presented in chapters 5,6 and 7. Using the analysis to propose requirements for enhancing existing tools or to support the design and development of future tools is work for the future and is discussed in section 10.4. The insights reported in chapters 5, 6 and 7 show analysis of empirical data, showing how mutual understanding evolves in a multidisciplinary team, which communicates face-to-face and using e-mail. The analysis also reports on Mulder's (2000) categories or aspects to show how they appear in time in relation to themes which have been identified from the empirical data and potential evidence of Cramton's (1997; 2001; 2002) problems which were also found in the empirical data. Providing designer and developers in CSCW with an insight into the evolution of mutual understanding with a team that has blind and visually impaired team members may also have provided interesting insights as this is currently not

covered in detail in existing literature, particularly in the context of examining the evolution of mutual understanding.

The limitations of this research are discussed next.

10.3 Limitations to this research

This thesis has contributed a detailed insight into the evolution of mutual understanding in multidisciplinary teamwork based on the re-definition for mutual understanding presented in this thesis and the methods which emerged from the process to monitor the evolution of mutual understanding. However, there are some limitations which need to be considered.

Data collection is examined first.

10.3.1 Data collection

The main limitation of this research is that the empirical data has been based on just one case study. However, the insights which have been reported from this case study are detailed and reveal some interesting findings. As there was only one team no comparisons could be made across different types of teams, and as existing research has not drawn on the themes mutual understanding and teamwork, it is difficult to make direct comparisons with what has been reported in existing literature. The comparison of two teams may provide additional insights, but it can be difficult to make direct comparisons between the two, as finding identical teams can be difficult.

Not attending the project kick-off meeting in September 2001 was also a limitation, as data could not be collected from the start of the team's interactions together. This also meant that e-mail messages that were sent to the project mailing list were only received after attending the December 2001 meeting. The kick-off meeting was not recorded, neither audio based nor video based, therefore any data from that meeting could not be used. The kick-off meeting had taken place whilst the researcher was still planning her empirical investigations, so could not attend it. However, the data analysis reported in chapters 5, 6 and 7 is based on a set of strong data, four face-to-face meetings and 181 e-mail messages sent to the project mailing list.

For data collection the focus was only on planned meetings. The researcher had acknowledged that other project activities could also be discussed in locations such as a shared kitchen, a coffee room, around the water cooler, or next to vending machines, especially when the team in question is collocated. However, such situations are unlikely in this team, as team members were not collocated and it is unlikely that the whole team would be present at an informal gathering at the kind of settings which have been provided as examples here. This is particularly true as the project team consisted of nine partners from six different European Union states. As the researcher would not have been able to witness all informal gatherings as described here, no data from any unplanned meetings were collected as no comparisons could be made against the different gatherings. Therefore, the focus for this investigation was on planned meetings only, which the researcher could attend as a silent observer.

To collect observational data, a coding scheme with pre-coded categories was also not used (Blaxter et al. 1996). Observation in this investigation was not structured in terms of a predetermined framework using pre-coded categories. Instead the researcher was interested in observing uncategorised interactions, which did not require a pre-determined framework to be provided prior to attending the face-to-face meeting.

An uncategorised interaction in this context refers to interactions ass they occur and interactions that are not constrained by previously agreed coding categories.

Not video-recording the face-to-face meetings was also another limitation to the analysis of the data. Chapter 4 reported that only audio recordings of the meetings were made, this did not compensate for not being able to see who was speaking at each turn and what they were referring to. Also, not using video-recordings meant that the analysis relied on verbal utterances from the speaker and no comparisons could be made amongst the verbal and non-verbal evidences which were identified in the transcript data. Although hand-written notes were produced at each meeting, they only recorded who was speaking at regular intervals, interesting observations from the meeting, seating plans and any non-verbal gestures which were observed. Over time the researcher became used to the voice of the team members and was able to identify who was speaking when listening to the audio recordings which were made of the meetings, providing that the recording was of a high quality. Although video-recordings would have been useful, the administrative co-ordinator of the team which was used to collect the empirical data, did not consent to this form of data collection, he felt that it was an intrusive way of collecting data. However, as reported in chapter 4, there were limitations to using video to collect empirical data so this did not cause too much concern that this type of data was not collected. Advancements in video technology attempt to overcome such problems, particularly in terms of capturing more than one view, and capturing more detailed and higher quality interactions.

In addition, no comparison can be made on the number of verbal and non-verbal grounding evidences, which were found in the discourse chunks. As reported in chapter 4, only audio recording was used to capture the discussions during the face-to-face meetings, thus reliant on team members speaking to capture grounding evidence. Although hand written notes were produced using pen and paper, noting down the non-verbal gestures which were observed, a full set of non-verbal gestures was not recorded, so therefore could not be the basis of performing a comparison between the two. Therefore it was not surprising that the number of spoken evidences were far higher than the non-verbal evidences, which usually consisted of a simple head nod.

No comparisons can also be made on the grounding evidences which were found in the individual discourse chunks. This is because equal amounts of times were not allocated during the meetings for each of the identified discourse chunks, and the amount of grounding evidence which is provided can be determined by the amount of time which was available for the presentations and discussions. In addition, the same discourse chunks were not always present at each of the meetings. The transcripts also identified that grounding evidence could be identified, but not in relation to a speakers completed utterance. For this reason grounding evidence was only identified for those utterances which were either completed, or when the speaker was still able to provide information to the hearer, even when what they were saying was not complete. For this reason not every *'yes'*, *'mhhhm'* or *'ok'* could be interpreted in terms of grounding evidence. It was also important to look at the surrounding context to identify and establish whether grounding evidence was really being provided, and displayed evidence of understanding. Literature (for example, Brennan, 1990; Kraut et al. 2003) reports that showing evidence of understanding is one of the main purposes of grounding.

Although photographs and video recordings can provide supplementary information and evidence, they were not used in this investigation. The leader of the European research project team did not consent to these two supplementary forms of data collection to be put into practice during each of the face-to-face meetings. Taking photographs during the meeting can also be considered a distraction and the recording equipment can be considered intrusive. Robson (2002) confirmed that video-recording equipment is often considered intrusive in nature. Video-recording each meeting, however, would have been useful to capture gestures, postures and interactions, allowing the researcher to see exactly what the participants were doing at any given time. Baguley (2003) says that listening to words is not the only part of the listening that you must do, you must also *'listen'* to the body language of the speaker. This is because their gestures, facial expressions and body movement can all speak to you. Gestures, for example, add emphasis to what is being said and facial expressions can give you a wealth of information – usually about what the speaker is feeling. A video recording in practice, however, is only effective when you are within the camera range. This can often be difficult to achieve particularly when there are problems with finding and agreeing on suitable camera positions and angles. Sacks (2000) mentions that video recordings sometimes result in low-level recording, capturing only certain motions, all influenced by the camera position and angle. On a more positive note, using video-recordings would have solved the practical problem of identifying who was speaking at each turn. As still photographs were unlikely to have fully captured all non-visible and non-verbal cues, not taking photographs was not perceived to have been a significant barrier to effective data collection. Lastly, by preserving just audio recordings, it was acknowledged that non-verbal cues would be lost.

Also as each mini-disc tape recorded for 74 minutes, a few seconds of recording was often lost when inserting a new tape into the recorder. To shorten this delay, tapes could be unwrapped prior to entering the meeting. However, bringing unwrapped tapes to the meeting still could not guarantee that any recording time was not lost in between changing tapes.

Response rates to the questionnaires to identify the multidisciplinary nature of the project teams and telephone interviews which were conducted with team members was also another problem which had been encountered. A 100% response rate for these two forms of data collection was not achieved. Despite several reminders being sent to the team everyone did not participate in these two activities. The completed questionnaires did prove that the European research project team was multidisciplinary in nature, however, detailed information for each team member was not available, as a result of not achieving a 100% response rate. Language problems and English not being the first language of most team members also seemed to be a contributing factor to the low response rates for both the telephone interview and the questionnaire. Translators were arranged when team members made a request to hold the telephone interview in their first language.

Also, telephone interviews after each face-to-face meeting were not conducted, as this would require more time from the team members. In addition each team member may not have had the time to participate in four individual interviews. However, if telephone meetings had taken place after each face-to-face

meeting, the researcher would have been able to compare answers in more detail across the four face-to-face meetings.

For this investigation, an interview was selected rather than a questionnaire as the researcher could provide other information if the interviewees misunderstood what they were being asked. In comparison, team members may be unwilling to follow up answers provided in a questionnaire if more detail is sought than what has been provided or if a question had been misunderstood and not answered in the manner expected by the researcher.

Face-to-face interviews were also not feasible as team members belonged to nine partner organisations from six European states. Further, the researcher would not have had the opportunity to go and visit team members from each partner organisation to conduct the interviews.

Although formal face-to-face consortium meetings were held once every 3- months, it would have been inappropriate to schedule such interviews after the meetings, as team members may be tired, and there may have been a response rate lower than what the telephone interviews actually received. Also, the interviews could not take place after the meeting at the hotel where team members were staying as everyone did not always stay at the same hotel. In addition, team members belonging to the same partner organisation that is hosting the meeting would not be staying at a hotel, but commuting to and from home instead, further explaining why interviews should not be conducted after the meeting, at the hotel team members are staying at.

As described in chapter 4, members of the project team were not offered monetary incentives to complete the questionnaires and to participate in telephone interviews. Instead the researcher took treats to the face-to-face meetings to thank the project team in their co-operation with providing data for this research investigation. Not providing monetary incentives did not seem to be the cause of low response rates. Team members frequently reported their busy schedule, as working on this European research project was not the only piece of work that they were involved in. Team members were also performing other tasks and duties at their partner organisations.

The next section examines the limitations for the data analysis.

10.3.2 Data analysis

To analyse data collected from face-to-face meetings required transcripts to be produced. Producing transcripts from the audio recordings of the face-to-face meetings was a time consuming process. On some occasions the transcripts were not complete with details of who was speaking because the hand-written notes which were produced did not provide that information. Also, it was not clear from the audio recording who was speaking. In addition, sometimes the recordings were of poor quality and the researcher could not transcribe what was said. Speakers not talking loudly enough was often the main cause of problem. At the start of each meeting, team members were not asked to speak clearly and loudly as this may have affected their participation during the meeting, potentially making them self-conscious when speaking to other members of the team. As a result this may affected the quality of some of the

recordings. The quality of the recording can therefore be dependent on team members speaking both clearly and loudly at all times

The Aiwa minidisc recorder AM-F5 that was used to audio record the meetings did not record whispers. The recordings would only identify that team members were whispering. To reveal which team members it was required crosschecking with the hand-written notes which were produced. Recognising speaker voices were also another identifier. Informal conversations could only be captured when the minidisc recorder was directly placed in front of who was speaking. However, to make audio recordings of the meeting, the researcher placed the minidisc recorder on the table in front of her. Placing the recorder under the table may have raised suspicion and doubt from team members. Therefore any informal discussions which did not concern the whole team, were simply marked as team members whispering to each other in the transcripts, and what was said was not fully transcribed.

As reported in section 10.3.1, as video recordings of the face-to-face meetings were not made, analysis was reliant on the audio-recordings made using the minidisc recorder. Although non-verbal gestures when observed were recorded by pen and paper, no comparisons can be drawn because of the lack of completeness and accuracy for the recordings of the non-verbal interactions.

Another limitation for the data analysis was the lack of taxonomy, which detailed the different evidences which can be found for grounding. This limitation was addressed by conducting extensive literature searches and finding grounding examples. However, most of the reported examples were short and did not contain a wide range of evidences. Jurafsky et al. (1998) as reported in chapter 3 provided a useful insight into the different evidences which can be used to provide evidence of agreement. However, the characterised states and sub-states to monitor the evolution of mutual understanding in transcript data also looked at the different contexts in which agreement can be found, Jurafsky et al. did not look at this. In addition Jurafsky et al. did not provide evidence for disagreements or holding a neutral position. The analysis of the transcript data, when looking for grounding evidence reveals that it is not enough to just look for the grounding evidences identified by Jurafsky et al. when looking at agreement, but to look at the surrounding context of the transcript as well.

By identifying and monitoring grounding evidence in this investigation, this in turn can monitor the evolution of mutual understanding. However, evidence of grounding has often been found at speech act level. According to Horsey (2001) determining the speech act of an utterance is a pragmatic process. Clark and Clark (1977) believe that speech acts are critical to communication and that speakers expect listeners to recognise the functions of the sentences that they speak and to act accordingly. Much of the discussions on speech acts however are limited to what Clark and Carlson (1982) call canonical speech acts, where a single speaker addresses a single hearer who is fully known to the speaker, and that there are no other relevant hearers. In teamwork, as there can be more than one hearer, views such as this become less relevant.

Although, the analysis in this investigation examined utterances sentence by sentence, paying close attention to the listeners, speech acts were not identified. Identifying speech acts in this investigation was

not feasible, as sentences were not always as simple as that reported in literature (for example, Traum and Allen, 1992; Allwood et al. 1993).

According to Searle (1971) there are over one thousand acts, which include suggest, state, describe, warn, request, threat, suggest, criticise, hint, boast, complain, accuse and promise, all which are acts of intentions. Speech act theory is about speaker intentions, and not about the hearer's successful recognition of those intentions and subsequent behaviour (Sperber and Wilson, 1982). However, what remains important with speech acts is that recognising which speech act the speaker is attempting to perform can be vital to understanding utterances. However, De Michelis and Grasso (1994) point out that no speech act can have either a meaning or illocutionary point out of a context. Moreover, the interpretation of a speech act within a given context depends on and defines the viewpoint from which it is performed. In De Michelis and Grasso's opinion, it is impossible to assume that two persons interpret a speech act in the same way, because it is impossible to ascertain that they have in mind the same context and viewpoint. This is an important point to bear in mind when looking at the interpretation of speech acts, particularly when there is more than one person interpreting that act.

The researcher when looking for evidence of the categories or aspects in this investigation, using transcripts and e-mail messages, did not code utterances at the same level as Mulder (2000) and Mulder and Swaak (2000; 2001). The researcher was only looking for evidence in the discourse and textual chunk of what types of categories or aspects were covered in that chunk and not looking at single utterances. As the researcher was using the *'chunk'* for the unit of analysis, it was acknowledged that more than one category or aspect might be identified from one chunk. Mulder (2000), however, always identified only one category or aspect per utterance. In addition, the researcher was not looking for evidence for Der Meij and Boersma's (2002) three speech acts or the six feedback modes designed by Mulder and Swaak. This is because it was the *'chunk'* which was the unit of analysis and not utterances, so speech acts were not identified. Also, the researcher was not interested in examining speech acts and how they appeared in the interactions. Lastly, feedback modes were not highlighted in the interactions in the manner Mulder and Swaak did. However, it must be acknowledged that grounding evidences which are identified in the interactions, may show evidence of those feedback modes, but the researcher was not drawing attention to particular feedback modes. As shown in the chapter 3, the researcher characterised states and sub-states to monitor grounding evidences.

Not having access to Mulder's (1999; 2000a; 2000) and Mulder et al's. (2000) complete set of transcripts to show the classification of utterances to the four aspects or categories was also a limitation. This was particularly true for the technology categories or aspects. Most of the examples which were provided focussed on task/domain. Mulder's (2000) specific coding for the four categories or aspects was also limited in terms of what types of utterances could be classified. However, no changes had been introduced to Mulder's coding scheme when analysis was performed in chapters 6 and 7. Also, the analysis was only looking at task/domain, social interaction, process and technology. The researcher was not interested in showing that task/domain and social interaction formed content of the expression and that process and technology formed meta communication.

There were also limitations to the inter-rater reliability which was performed and discussed in chapter 7. The identification of textual chunks and application of the characterised states to monitor the evolution of mutual understanding for e-mail based interactions could not have inter-rater reliability performed on it. This limitation arose, as the characterised states required the full transcripts from the face-to-face meetings. As samples are given to check on reliability, inter-rater reliability for the application of states to the e-mail could not be performed. As the analysis was performed looking at identifying textual chunks in the e-mail messages, and not identifying grounding evidence at the utterance level, like in the transcripts of the face-to-face meetings, it is assumed that there would not be significant differences between those two people. However this remains an unconfirmed assumption.

In addition, Mulder was not able to participate in the inter-rater reliability exercise which was conducted to identify and establish if her (2000) four categories or aspects by which groups update mutual understanding were interpreted correctly to the data analysis performed in this investigation. As a result, the same independent rater who asked to identify grounding evidence from transcript extracts and apply the characterised sub-states to the grounding evidences, was asked to identify and establish which of Mulder's categories or aspects were found in the discourse chunks they were presented with. Although there was reliability with the researcher, it would have been better if Mulder had participated in this exercise as she had developed the categories or aspects, the coding scheme, and involvement in the analysis of the empirical data which she had collected, and the conclusions drawn from it.

The results of the inter-rater reliability exercise in which Cramton participated reveal that it was difficult for two independent persons to identify potential evidence of the same problem based on extracts of real-life data as surrounding context is important and that extracts alone are not sufficient. This led to poor reliability results in this exercise, as Cramton left several extracts uncoded. As identifying evidence of Cramton's problems was not directly significant to the monitoring of mutual understanding in multidisciplinary teamwork, it does not matter to a strong degree that there were such differences between the researcher's identification and Cramton's. Reasons for using Cramton's problems were discussed in chapter 4. The inter-rater reliability of two people seeking and applying the same grounding evidence and sub-states was of more importance. Chapters 5,6 and 7 results showed that this could be achieved, acceptable levels of agreement between the researchers coding and the independent person use for calculating inter-rater reliability.

The next section examines the limitations relating to the validation of the proposed guidelines.

10.3.3 Validation of the proposed guidelines

The validation exercise reported in chapter 9 has shown that the proposed guidelines have validity outside the original team. However, if time permitted it would have been useful to perform other types of validation exercises to assess the validity of the proposed guidelines with a different team make up. This is discussed further in section 10.4.

The next section proposes some ideas for conducting future work.

10.4 Future work

The research reported here has contributed to our understanding of the evolution of mutual understanding, described the re-definition for mutual understanding, characterised states and sub-states to monitor the evolution of mutual understanding and applied them to data collected from one real world case study. This section now examines ways in which this research can be extended by examining some proposals for future work.

10.4.1 Looking at other media

This investigation has focussed on two forms of interactions, face-to-face and e-mail. Further investigations can examine the evolution of mutual understanding looking at other types of media, as interactions are not limited to the two styles of interactions which were the focus of this investigation. Clark and Brennan (1991) identified the grounding constraints of several media and empirical investigations have not examined all media types they mentioned. Literature (for example, Veinott et al. 1999; McCarthy et al. 1991) confirms that grounding is more difficult to achieve in text based interactions. Other media still requires empirical investigations to be performed.

The next section looks at selecting a different type of team.

10.4.2 Selecting a different team

As mentioned in chapter 4, the European research project team which was used for this investigation, was made up of nine partners from six European Union states. It is an example of a dispersed team. It would be interesting to examine the evolution of mutual understanding in a team which is collocated, where team members can have the opportunity to meet each other more frequently. Selecting a smaller sized team may also produce some interesting results, in order to examine the role of team size in the evolution of mutual understanding. It may also be interesting to select a team which is not multidisciplinary in nature, and to examine the evolution of mutual understanding in this type of team. Selecting student teams may also produce contrasting results to the insights reported in chapters 5, 6 and 7, as students may have different attitudes towards approaching project work. In addition if time permits during your data collection, examining a team that covers the different stages of the systems life cycle, may be interesting to examine in terms of the five phases of group development by Tuckman and referred to widely in literature (for example, Boddy, 2002; Robbins and Finley, 2000). Existing literature has not focussed on the evolution of mutual understanding covering the systems life cycle, with focus on the five phases of group development.

The next section looks at a different focus for analysis.

10.4.3 Focus of analysis

This investigation was only concerned with the analysis of empirical data at the group level, by looking at interactions which involved the whole team. Future work may also wish to look at the individual interactions that occur between team members as it may be interesting to examine the evolution of mutual understanding at a group level and to compare it with the individual level. For example, to look at what

type of information is communicated at a group level and at a non-group level. Although this would be an interesting area to examine, it may be difficult to collect this data, especially when you are not part of the team, and only attend scheduled meetings to collect data. Asking team members to keep a diary can be a compromise to the solution. Another solution can be to spend time with a team and to collect data from that team, rather than just attending scheduled meetings. It may also be interesting to focus on team members roles in the team and to focus on how the role of team members affects the evolution of mutual understanding. This investigation did not focus on the role of team members.

The next section looks at producing taxonomies.

10.4.4 Producing taxonomies

As mentioned in 10.2.3, one of the limitations of existing research is that a taxonomy of all the different types of grounding evidences which can be found is not available. For this reason future work can focus specifically on producing a taxonomy of all the different types of grounding evidences which can be found based on real-life data. The taxonomy may be useful to researchers interested in seeking evidence of grounding.

Taxonomy of problems found in multidisciplinary teams can also be produced. Existing literature identifies a number of problems, but does not look at each one in detail. As increasingly more teams are becoming multidisciplinary, producing a detailed taxonomy may be useful. Similarly, a taxonomy of successful interactions in multidisciplinary teams can be produced. Like the identification of problems reported in multidisciplinary teams, building successful multidisciplinary team practice does not appear to be the centre of focus and is only briefly examined.

The next section examines producing requirements for designers and developers in CSCW.

10.4.5 Producing requirements for designers and developers in CSCW

As mentioned in section 10.2.2, the analysis reported in chapters 5,6 and 7 was not interpreted in a different form for developers and designers in CSCW. However, these chapters captured the insights which were important to show how a real-life project team communicates both face-to-face and using e-mail. As a starting point, those insights can be used and requirements can be produced to enhance or design new tools to support communication and collaboration based on how interactions are conducted face-to-face. In addition, looking at the types of messages that are sent by members of the team by e-mail may allow designers and developers to integrate in the design of a tool how e-mail can be used, rather than using separate applications. Although eliciting requirements and producing prototypes are commonly used to design and develop tools, this work proposes using insights based on real data to inform how teams interact and as a result of those interactions mutual understanding evolves in the team. This work may be of particular significance to dispersed teams who do not always have the opportunity to hold face-to-face meetings.

The next section concludes this chapter.

10.5 Conclusion

Overall this thesis has drawn together literature from mutual understanding, ingredients related to mutual understanding and teamwork. This thesis has investigated the evolution of mutual understanding in a multidisciplinary team that was formed to work on a European research project, with nine partners from six different European Union states. However English was used as the main language to communicate and collaborate with all team members. Team members met face-to-face as a group once every 3-months and used an e-mail mailing list to stay in touch with the team in between each face-to-face meeting. The re-definition for mutual understanding and the characterisation of states and sub-states to monitor the evolution of mutual understanding allowed a rich detailed insight to be gained on how one team evolved its mutual understanding with team members during a 1-year period of a 27-month project. This thesis has made a contribution to providing a re-definition for mutual understanding and sharing with others the method to monitor mutual understanding which evolved from the process. The results from this investigation confirm that multidisciplinary teamwork can be challenging and that although situations which reached growth in mutual understanding far outweighed no growth in mutual understanding, it is important that teams recognise when they are facing situations where there is no growth, so appropriate action can be taken to alleviate the problem from developing further. The guidelines which were proposed to promote mutual understanding in multidisciplinary teamwork and results from the validation show that to promote mutual understanding in teamwork, is not difficult and much of what has been proposed in the guidelines are simple steps that team members should take. A large number of new practices are not required to promote mutual understanding in teamwork either.

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TO ALL PARTICIPANTS

Title of research project: To investigate the evolution and maintenance of a shared understanding between team members from different disciplines and to investigate the role that communication and information technologies play in this process.

Purpose of this project: You are being asked to participate in this research study designed to provide empirical evidence for my PhD research. I am using the XXXXXX Project to carry out ethnographic studies to collect evidence for my empirical work as it has team members from different disciplines, each with different languages, experiences and areas of expertise (technical/media/academics/HCI and disability).

Procedures:

You will be asked to do the following:
- Complete a questionnaire that is designed to find out about your most recent experience of working in an interdisciplinary team
- To copy me on all e-mails that are sent
- To inform me of any other communication methods that are used by e-mail
- To keep a log of topics that are discussed on the phone and to e-mail them to me
- To send copies of any faxes received (or any other method of communication)
- Complete a questionnaire at the end of the project to find out about your team-working experiences

I intend to do the following:
- Attend project meetings
- Draw seating plans
- Audio tape the meetings and then transcribe them to extract significant conversations and discussions to analyze (copies of the audio can be made available on request)
- Produce handwritten notes to record my observations
- To analyse e-mail messages using Cramton's (2001) five problems of dispersed collaboration

Possible risks or discomfort: There are no risks associated with participating in this research study.

Confidentiality: Your identity in this study will be treated as confidential. The results of the study, including significant conversations and discussions (from transcriptions and e–mails) may be published but will not give your name or include any identifiable references to you. To protect you confidentiality codes will be used to identify the data.

Termination of study: You are free to choose whether or not to participate in this study. You may also withdraw at any time.

AUTHORISATION: I have read and understand this consent form, and I volunteer to participate in this research study. I understand that I will receive a copy of this form.

Participant name:
Date:

Participant signature:
Date:

Signature of person obtaining consent:
Date:

The title of my research is to investigate the role of e-mail in between formal face-to-face meetings for the evolution of a mutual understanding in a mixed-discipline project team.

In this research the term mutual understanding is defined as

The members of a group *G* commonly believe that *p* = def.
(1) The members of *G* believe that *p*
(2) The members of *G* believe that the members of *G* believe that *p*
(3) The members of *G* believe that the members of *G* believe that the members of *G* believe that *p*.

The purpose of this interview is to find out from team members their communicative and collaborative experiences regarding this project to date.

I am also hoping to find out what were the significant communicative and collaborative events that took place. In all your answers please make reference to this project team, and give examples where possible as it provides empirical evidence for my research.

As part of my research I am focusing specifically on two forms of interactions: formal face-to-face consortium meetings and e-mail communications. Please feel free to tell me about any other forms of interaction(s) that you have used.

The interview will be audio-recorded if permission is given and all answers will be treated in strict confidence.

Thank you in advance for your co-operation in taking part in this telephone interview.

1

- Briefly outline your area of expertise relevant to this project and describe the main contributions that you are or will be making?

2

- Can you think of an example of where communication and collaboration has been particularly successful in this project?

Probing question

- Was this witnessed during a formal face-to-face consortium meeting or was it sent as an e-mail message?
- What factors do you think led to this success?
- If the example given is face-to-face can you think of another example using e-mail and vice versa

3

- Can you think of an example of where there has been a breakdown in communication and collaboration?

Probing question

- Was this during a formal face-to-face consortium meeting or was it sent as an e-mail message?
- What factors do you think led to this breakdown?
- What were the consequences?
- How could this breakdown be avoided in the future?
- If the example given is face-to-face can you think of another example using e-mail and vice versa

4

- On a scale of 1-5 (1 being not very effective and 5 being very effective) how useful were the four formal face-to-face consortium meetings? (18th-19th Jan 2001; 14th-15th Mar 2002; 6th-7th Jun 2002 and 12th-13th Sep 2002)

Probing questions:

- Was their any information that you expected but was not given?
- Do you feel you have been kept up-to-date with progress?
- If no, what were the consequences?
- Was this an on-going observation?
- How can future meetings be improved?
- Were significant developments shared during the face-to-face meetings only, or were you made aware of them by e-mail?

5

- Have you experienced any problems of understanding information as a result of it being communicated during the formal face-to-face consortium meeting?

Probing questions:

- If yes, please give an example.
- What were the consequences?
- Were any actions discussed to reduce this problem?
- Would this problem have arisen if e-mail were used?

6

- On a scale of 1-5 (1 being not very effective and 5 being very effective) how useful do you think e-mail messages are in supporting communication and collaboration in between formal face-to-face consortium meetings?

Probing questions:

- What type of messages do you usually send to the whole group?
- How can team members improve the messages that they send to increase understanding and reduce misunderstanding?

7

- Have you experienced any problems of understanding information because it was communicated using e-mail?

Probing question:

- If yes, please give an example
- What were the consequences of this problem?
- How can it be avoided in the future?
- Would this problem have arisen if it were communicated formally during a face-to-face consortium meeting?

8

- Do you think that some messages are communicated better face-to-face than e-mail? For example resolving conflict, making decisions etc

Probing question:

- Can you think of other examples that are not limited to these two forms of interactions only?

9

- Have you learnt to use any terms or terminology differently since the project started?

Probing question:

- If yes, please give examples.
- If no, has this caused any problems when communicating and collaborating with the other team members?

10

- On a scale of 1-5 (1 being not very effective and 5 being very effective) how would you rate the usefulness of the project glossary in reducing misunderstanding with terms and terminology?

Probing questions:

- How many times have you looked at it?
- Can you remember why you were using it and what terms you were looking for?
- Have you added any of your own terms to it?
- Are there any terms that you have not added, but think that they would be useful if they were included?

11

- Are there any concerns that you had at the start of the project that were to do with communicating and collaborating with the whole team?

Probing questions:

- Do any of these concerns still exist?
- If no, what was done to resolve them?
- If yes, how can they be overcome?

12

- Is there anything else you would like to comment on?

The title of my research is to investigate the role of e-mail in between face-to-face meetings for the evolution of a mutual understanding in a mixed-discipline project team.

In this research the term mutual understanding is defined as *"A relative state which becomes larger as the common ground and number of mutual beliefs become established and grow"*.

The purpose of this interview is to find out from team members their communicative and collaborative experiences regarding this project.

I am also hoping to find out what were the significant communicative and collaborative events that have led towards the evolution of a mutual understanding so far in this team. In all your answers please make reference to this project team. The answers will provide empirical evidence for my research, so please give examples where possible.

As part of my research I am focusing specifically on two forms of interactions: formal face-to-face consortium meetings and e-mail communications. Please feel free to tell me about any other forms of interaction(s) that you have used.

The interview will be audio-recorded if permission is given and all answers will be treated in strict confidence.

Thank you in advance for your co-operation in taking part in this telephone interview.

1

- Briefly outline your area of expertise relevant to this project and describe the main contributions that you are or will be making?

2

- Can you think of an example of where communication and collaboration has been particularly successful in this project?

Probing question

- Was this during a formal face-to-face consortium meeting or sent as an e-mail message?
- If the example given is face-to-face can you think of another example using e-mail and vice versa
- What factors do you think led to this success?

3

- Can you think of an example of where there has been a breakdown in communication and collaboration?

Probing question

- Was this during a formal face-to-face consortium meeting or sent as an e-mail message?
- What factors do you think led to this breakdown?
- What were the consequences?
- How could this breakdown be avoided in the future?
- If the example given is face-to-face can you think of another example using e-mail and vice versa

4

- On a scale of 1-6 (1 being not effective and 6 being very effective) how useful were the four formal face-to-face consortium meetings? (1st: 18th-

19th Jan 2001; 2nd: 14th-15th Mar 2002; 3rd: 6th-7th Jun 2002 and 4th: 12th-13th Sep 2002)

Probing questions:

- Was their any information that you expected but was not given?
- Do you feel you have been kept up-to-date with progress?
- If no, what were the consequences?
- Was this an on-going observation?
- Was that matter raised?
- How can future meetings be improved?
- Were significant developments shared during the face-to-face meetings only, or were you made aware of them by e-mail?

5

- Have you experienced any problems of understanding information because it was communicated during the formal face-to-face consortium meeting?

Probing questions:

- If yes, please give an example.
  Would this problem have arisen if e-mail were used?

6

- On a scale of 1-6 (1 being not effective and 6 being very effective) how useful do you think e-mail messages are in supporting communication and collaboration in between face-to-face consortium meetings?

Probing questions:

- What type of messages do you usually send to the whole group?
- Over the last year, approximately how many group messages did you send?
- How can team members improve the messages that they send to increase understanding and reduce misunderstanding?

7

- Have you experienced any problems of understanding information because it was communicated using e-mail?

Probing question:

- If yes, please give an example
- What were the consequences of this problem?
- How can it be avoided in the future?
- Would this problem have arisen if it were communicated face-to-face at a consortium meeting?

8

- Do you think that some messages are communicated better face-to-face than e-mail? For example resolving conflict, making decisions etc

Probing question:

- Can you think of other examples that are not limited to these two forms of interactions only?

9

- Have you learnt to use any terms or terminology differently since the project started?

Probing question:

- If yes, please give examples.
- If no, has this caused any problems when communicating and collaborating with the other team members?

10

- On a scale of 1-6 (1 being not effective and 6 being very effective) how would you rate the usefulness of the project glossary in reducing misunderstanding with terms and terminology?

Probing questions:

- How many times have you looked at it?
- Can you remember why you were using it and what terms you were looking for?
- Have you added any of your own terms to it?
- Are there any terms that you have not added, but think that they would be useful if they were included?

11

- Are there any concerns that you had at the start of the project that was associated with communicating and collaborating with the whole team?

Probing questions:

- Do any of these concerns still exist?
- If no, what was done to resolve them?
- If yes, how can they be overcome?

Dear Team Member,

I am currently writing about the multidisciplinary nature of this project team for my thesis, and would be grateful if you can complete this questionnaire, as honestly as possible. This should take no longer than **10-15** minutes.

All answers will be treated in the **strictest confidence**.

Please answer the questions using this **attachment**, and then return to me via electronic mail (e-mail).

If you prefer, I can **call** you at a time that is convenient to you and ask you the questions over the telephone.

All completed questionnaires must be received by **Friday 12th December 2003**.

If you have any questions please do not hesitate to contact me.

Thank you in advance for your co-operation.

Regards

Sajal

1. Please fill in the table below, if you are completing or have already completed either a
Diploma (e.g. a one year program of study) **or**
Degree (e.g. a three - five year program of study in a university program).
In your answer refer to **ALL** levels that you have studied, or are still studying, starting with the highest academic qualification that you have attained first.
If you have not completed any of the above, please go straight to question three.

Title	Level	Year completed
E.g. Business Computing Systems	Undergraduate BSc Hons	2000

2. If you completed the table in question one, please outline what discipline(s) your title(s) would be included in. Eight disciplines have been identified:
Arts (e.g. Journalism, Music, Art…)
Business and Management (e.g. Actuarial Science, Business Studies, Banking…)
Computing (e.g. Computer Science, Software Engineering, Information Systems…)
Engineering (e.g. Aeronautical, Air Transport, Civil, Electrical and Electronic…)
Social Sciences (e.g. Economics, Psychology, Sociology, Economics…)
Science (e.g. Biological Sciences, Chemistry, Physics, Mathematics…)
Health Sciences (e.g. Nursing, Medicine, Midwifery, Dentistry, Pharmacy…)
Law
If other please state.

Title	**Discipline**
E.g. Business Computing Systems	Computing

3. What discipline(s) are you contributing to this project? Please include the subject area as well.
Please note that these disciplines may not necessarily be the same as those listed in question two.

4. Please rate your perceived level of expertise on the scale below for each of the **skills** that are relevant to this project.
For each skill, please identify whether your knowledge is theoretical and/or practical, by marking the box with an **X**. If you have **both** types of knowledge, please mark columns **T and P** respectively.
Also, include any other relevant skills that you may have, and remember to complete the scale as well.
T = Theoretical knowledge (Not yet developed or practised anything, have only read about it)
P = Practical knowledge (Practical implementation experience has been acquired)

Skills	**None**		**Novice**		**Advanced beginner**		**Competent**		**Exper**	
	0		**1**		**2**		**3**		**4**	
	T	**P**	**T**	**P**	**T**	**P**	**T**	**P**	**T**	**P**
Using web authoring tools										
Understanding E-learning concepts										
Creating portals										
Using speech recognition tools										
Coding in voice XML										
Understanding plug-in integration										

Skills	None		Novice		Advanced beginner		Competent		Expert	
	0		1		2		3		4	
	T	P	T	P	T	P	T	P	T	P
Working directly with disabled users										
Identifying accessibility of world wide web to disabled users										
Assessing needs of disabled users and identifying user requirements										
Designing Assistive technology for disabled users										
Evaluating Assistive technology for disabled users										
Other Skills										

5. Please rate your perceived level of expertise on the timeline below, by entering the **number of years** in the relevant boxes.
Remember to add any other skills you included in question four as well, and to complete the timeline.
T = Theoretical knowledge (Not yet developed or practised anything, have only read about it)
P = Practical knowledge (Practical implementation experience has been acquired)

Skills	None		< 1 year		2-4 years		5-7 years		8-10 years		11-13 years		14-16 years		17-19 years		20 years + please specify	
	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P
Using web authoring tools																		
Understanding E-learning concepts																		
Creating portals																		
Using speech recognition tools																		
Coding in voice XML																		
Understanding plug-in integration																		
Working directly with disabled users																		
Identifying accessibility of world wide web to disabled users																		
Assessing needs of disabled users and identifying user requirements																		
Designing Assistive technology for disabled users																		
Evaluating Assistive technology for disabled users																		
Other Skills																		

6. Please complete the table below, if you have used any of the skills from question four in previous projects.

Skill	**Total number of projects involved in**
E.g. Using web authoring tools	Two

7. Please list any courses (or training) attended in the **last five years**, relevant to this project. Start with the most recent first.

Course Month/Year	**Course Title**	**Course Duration**	**Internal (e.g. run by own partner organisation) or External (e.g. run by an accredited body)**
E.g. 10/02	Qualitative Research Methods	2 days	Internal

8. Any other relevant information to add to this questionnaire.

Thank you for your time.

All answers will be treated in the strictest confidence.

Dear Team Member,

I am currently writing about the multidisciplinary nature of this project team for my thesis, and would be grateful if you can complete this questionnaire, as **honestly** as possible. This should take no longer than **10-15 minutes**.

All answers will be treated in the **strictest confidence**.

Please answer the questions using this **attachment**, and then return to me via electronic mail (e-mail).

If you prefer, I can **call** you at a time that is convenient to you and ask you the questions over the telephone.

All completed questionnaires must be received by **Friday 12th December 2003**.

Thank you in advance for your co-operation.

Regards,
Sajal

1. Please fill in the table below, if you are completing or have already completed either a **Diploma** (e.g. a one year program of study) **or**
Degree (e.g. a three - five year program of study in a university program).
In your answer refer to **ALL** levels that you have studied, or are still studying, starting with the highest academic qualification that you have attained first.
If you have not completed any of the above, please go straight to question three.

Title	Level	Year completed
E.g. Business Computing Systems	Undergraduate BSc Hons	2000

2. If you completed the table in question one, please outline what discipline(s) your title(s) would be included in. Eight disciplines have been identified:
Arts (e.g. Journalism, Music, Art...)
Business and Management (e.g. Actuarial Science, Business Studies, Banking...)
Computing (e.g. Computer Science, Software Engineering, Information Systems...)
Engineering (e.g. Aeronautical, Air Transport, Civil, Electrical and Electronic...)
Social Sciences (e.g. Economics, Psychology, Sociology, Economics...)
Science (e.g. Biological Sciences, Chemistry, Physics, Mathematics...)
Health Sciences (e.g. Nursing, Medicine, Midwifery, Dentistry, Pharmacy...)
Law
If other please state.

Title	Discipline
E.g. Business Computing Systems	Computing

3. What discipline(s) are you contributing to this project? Please include the subject area as well.
Please note that these disciplines may not necessarily be the same as those listed in question two.

4. Please rate your perceived level of expertise on the scale below for each of the **skills** that are relevant to this project.
   For each skill, please identify whether your knowledge is theoretical and/or practical, by marking the box with an **X**. If you have **both** types of knowledge, please mark columns **T and P** respectively.
   Also, include any other relevant skills that you may have, and remember to complete the scale as well.

T = Theoretical knowledge (Not yet developed or practised anything, have only read about it)

P = Practical knowledge (Practical implementation experience has been acquired)

Skills	None		Novice		Advanced beginner		Competent		Expert	
	0		1		2		3		4	
	T	P	T	P	T	P	T	P	T	P
Using web authoring tools										
Understanding E-learning concepts										
Creating portals										
Using speech recognition tools										
Coding in voice XML										
Understanding plug-in integration										
Working directly with disabled users										
Identifying accessibility of world wide web to disabled users										
Assessing needs of disabled users and identifying user requirements										
Designing Assistive technology for disabled users										
Evaluating Assistive technology for disabled users										
Other Skills										

5. Please rate your perceived level of expertise on the timeline below, by entering the **number of years** in the relevant boxes.
Remember to add any other skills you included in question four as well, and to complete the timeline.

T = Theoretical knowledge (Not yet developed or practised anything, have only read about it)

P = Practical knowledge (Practical implementation experience has been acquired)

Skills	None		< 1 year		2-4 years		5-7 years		8-10 years		11-13 years		14-16 years		17-19 years		20 years + please specify	
	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P	T	P
Using web authoring tools																		
Understanding E-learning concepts																		
Creating portals																		
Using speech recognition tools																		
Coding in voice XML																		
Understanding plug-in integration																		
Working directly with disabled users																		
Identifying accessibility of world wide web to disabled users																		
Assessing needs of disabled users and identifying user requirements																		
Designing Assistive technology for disabled users																		
Evaluating Assistive technology for disabled users																		
Other Skills																		

6. Please complete the table below, if you have used any of the skills from question four in previous projects.

Skill	**Total number of projects involved in**
E.g. Using web authoring tools	Two

Please list any courses (or training) attended in the **last five years**, relevant to this project.
Start with the most recent first.

Course Month/Year	Course Title	**Course Duration**	**Internal** (e.g. run by own partner organisation) **or External** (e.g. run by an accredited body)

E.g. 10/02	Qualitative Research Methods	2 days	Internal

7. Any other relevant information to add to this questionnaire.

Thank you for your time.

All answers will be treated in the strictest confidence.

Partner 1: A telecommunication company

Jack

In 1993 completed a PhD in Astrophysics and in 1989 completed a 5-year degree in Mathematics. The two subjects belong to the Science discipline.

Contributing to this project, co-ordination and management.

He did not rate the level of expertise he had, only the length of time he had been working with each

2-4 years practical knowledge on using web authoring tools, working directly with disabled users, identifying accessibility of World Wide Web to disabled users and assessing needs of disabled users and identifying user requirements. Less than 1 years-theoretical knowledge on understanding e-learning concepts and using speech recognition tools. 2-4 years theoretical knowledge on creating portals, designing assistive technology for disabled users and evaluating assistive technology for disabled users. Neither theoretical nor practical knowledge on coding in voice xml. Less than 1 year's theoretical and practical knowledge on understanding plug in integration. In addition 5-7 years practical knowledge and 11-13 years knowledge on co-ordination of international projects. Also 2-4 years practical knowledge and 5-7 years theoretical knowledge on management.

His co-ordination skills have been used in a total of fifteen projects, and his management skills have been used in ten previous projects.

In the last five years, a five day internal course on management of telecommunications projects was attended, and 100 hours on an external course on project management.

Jonathan

Jonathan had left the project team by March 2002; as a result no questionnaire had been sent to him.

Fabian

A request to complete the questionnaire was made to Fabian, however he did not send the questionnaire back.

The following information was provided in the telephone interview in which he participated.

In the department that he works for they are are co-ordinating the administrative and some of the technical activities of the project. He is helping the administrative co-ordinator, Jack, by preparing technical documentation regarding all the documents that must be sent to the commission, and all the reviews they must pass in order to obtain the financial help from the commission. He has been involved in the project from the very beginning, by preparing documentation for the commission and contacting all the partners that are now involved in the project. His main role in the project is to help in the administrative part and in the technical part, writing documents compiling information and writing it down and sending it to the commission.

James

A request to complete the questionnaire was made to James, however he did not send the questionnaire back.

Partner 2: A telecommunication company

Annie

In 1999 completed a three year degree in Computer Engineering, and is currently finishing a second two year degree in Computing. The two subjects belong to the Computing discipline

Contributing to this project the following subjects in the Computing discipline, Software Systems, Computer Science and Software Engineering.

Perceived level of expertise is as follows. Advanced beginner theoretical and practical knowledge on using web authoring tools, using speech recognition tools and understanding plug in integration. Novice theoretical and practical knowledge on understanding e-learning concepts, working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and designing assistive technology for disabled users. No theoretical and practical knowledge on creating portals, coding in voice xml and evaluating assistive technology for disabled users.

2-4 years practical and theoretical knowledge on using web authoring tools, using speech recognition tools, understanding plug in integration, working directly with disabled users, identifying accessibility of World Wide Web to disabled users and assessing needs of disabled users and identifying user requirements and designing assistive technology for disabled users. Less than 1 years theoretical and practical knowledge on understanding e-learning concepts, creating portals, coding in voice xml and evaluating assistive technology for disabled users.

There was no mention of how many projects had been worked on in the past, in relation to the skills, which are being used in this project.

Also no mention of relevant courses attended or training received.

A request to complete the questionnaire was made to Christopher, however he did not send the questionnaire back.

The following information was provided in the telephone interview in which he participated. The area he is working in is the development of the software. He is a computer programmer and has been working with tools for about 5 years. There main role is to develop software tools, also to integrate new technologies of accessibility. The tools is a mix of the following areas, voice integration and software development. Software development is his area of knowledge. The tools that his company develop are management tools, and supply them to companies like gas, electricity and water. In this project he is involved in the analysis and design and also in the meetings.

Geoff

In 1998 he completed a degree in Business Computing Systems, the disciplinary background of this subject was Computing.

To this project he will be contributing the Computing discipline.

Perceived level of expertise is as follows. Competent theoretical and practical knowledge on using web authoring tools, creating portals, understanding plug in integration and identifying accessibility of World Wide Web to disabled users. Advanced beginner with theoretical and practical knowledge on understanding e-learning concepts, using speech recognition tools, coding in voice xml, assessing needs of disabled users and identifying user requirements and designing assistive technology for disabled users. Has novice theoretical knowledge and advanced beginner practical knowledge on working directly with disabled users. Also has novice practical knowledge and advanced beginner theoretical knowledge on evaluating assistive technology for disabled users.

2-4 years practical knowledge on using web-authoring tools and creating portals. Less than 1 year, theoretical and practical knowledge on understanding e-learning concepts, using speech recognition tools, working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users. 2-4 years practical and theoretical knowledge on coding in voice xml. 2-4 years practical knowledge on understanding plug-in integration and 5-7 years theoretical knowledge on understanding plug-in integration.

Has used many of the above skills in previous projects. Four projects working directly with disabled users and evaluating assistive technology for disabled users; three projects identifying accessibility of World Wide Web to disabled users; two projects assessing needs of disabled users and identifying user requirements and designing assistive technology for disabled users.

No courses had been attended or training received in the last five years, which was relevant to this project.

Conwayne

A request to complete the questionnaire was made to Conwayne, however he did not send the questionnaire back.

Partner 3: A large charity in the UK serving the needs of blind and partially sighted people

Erin

In 1998 completed a BSC Hons in Business Information Systems. The subject discipline is Computing.

Contributing to this project user requirements, evaluation and dissemination.

Perceived level of expertise is competent theoretical and practical knowledge on using web authoring tools, understanding e-learning concepts, creating portals and designing assistive technology for disabled users. Novice theoretical and practical knowledge on using speech recognition tools and coding in voice xml. Advanced beginner, with theoretical and practical knowledge on understanding plug-in integration. Advanced beginner practical knowledge and competent theoretical knowledge on dissemination. Expert theoretical and practical knowledge on working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users.

5-7 years theoretical and practical knowledge on using web authoring tools, working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users, evaluating assistive technology for disabled users and dissemination. 2-4 years theoretical and practical knowledge on understanding e-learning concepts, creating portals and using speech recognition tools. Less than 1-year theoretical knowledge on coding in voice xml and understanding plug-in integration.

Has used many of the above skills in previous projects. Three projects using web authoring tools; one project understanding E-learning concepts, creating portals and coding in voice XML; two projects using speech recognition tools and understanding plug-in integration; five or more projects working directly with disabled users; identifying accessibility of World Wide Web to disabled users; assessing needs of disabled users and identifying user requirements; designing assistive technology for disabled users and evaluating assistive technology for disabled users. Another skill, which was identified as being used in four previous projects, was dissemination.

Attended external courses relevant to this project in the last five years. 1 day course on user testing, user focussed questionnaire analysis and design workshop and interviews to elicit user view's.

Kenneth

In 1979 completed a PhD in Electrical and Electronic Engineering. In 1994 completed a master's MBA. In 1975 completed a BSc in Electrical and Electronic Engineering. The disciplinary background for the subjects was as follows, Electrical and Electronic Engineering was Engineering and MBA was Business and management.

Contributing to this project the following disciplines Management, Engineering, Social Studies, Psychology, Computing and Law.

Perceived level of expertise is competent theoretical and practical knowledge on using web authoring tools and creating portals. Competent theoretical knowledge on understanding e-learning concepts. Advanced beginner with theoretical and practical knowledge on coding in voice xml. An expert with theoretical and practical knowledge on using speech recognition tools, working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users. Also expert theoretical and practical knowledge on European Union project management, European Union contracts, General project management and European Union finances.

11-13 years theoretical and practical knowledge on using web-authoring tools, identifying accessibility of World Wide Web to disabled users, European Union project management, European Union contracts and European Union finance. 2-4 years theoretical knowledge on understanding e-learning concepts. 2-4 years theoretical and practical knowledge on using speech recognition tools. Less than 1 year theoretical knowledge on coding in voice xml. 14-16 years theoretical and practical knowledge on working directly with disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users. 20 years + theoretical and practical knowledge on general project management.

Has used many of the above skills in previous projects. Two projects using web authoring tools; one project understanding E-learning concepts and creating portals; three projects using speech recognition tools; four projects identifying accessibility of World Wide Web to disabled users, 12 projects working directly with disabled users; assessing needs of disabled users and identifying user requirements; designing assistive technology for disabled users and evaluating assistive technology for disabled users. Other skills, which were identified as used in previous projects, included 12 projects using European Union Project Management; European Union Contracts and European Union Finance. There was also a large number of projects which were worked on looking at general Project Management.

No courses had been attended or training received in the last five years, which was relevant to this project. Kenneth said being continuously involved in European Union projects on many similar themes and working with visually impaired people, resulted in his training and the training of his staff to be 'on the job' or through conferences rather than by attending short courses.

Ned

Did not study for a degree. Will be contributing to this project the Computing discipline and evaluating systems.

Perceived level of expertise is novice theoretical knowledge on using web-authoring tools. Novice theoretical and practical knowledge on understanding e-learning concepts and designing assistive technology for disabled users. No practical knowledge but novice theoretical knowledge on creating portals. Novice theoretical knowledge and advanced beginner practical knowledge on using speech recognition tools. No theoretical and practical knowledge on coding in voice xml and understanding plug-in integration. Advanced beginner theoretical knowledge and competent practical knowledge on working directly with disabled users. Expert theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users. Advanced beginner theoretical knowledge and expert practical knowledge on assessing needs of disabled users and identifying user requirements. Advanced beginner theoretical knowledge and competent practical knowledge on evaluating assistive technology for disabled users.

2-4 years practical knowledge on using web authoring tools. 2-4 years theoretical and practical knowledge on understanding e-learning concepts (18 months), working directly with disabled users (3 years), identifying accessibility of World Wide Web to disabled users (2 ½ years), assessing needs of disabled users and identifying user requirements (2 ½ years) and evaluating assistive technology for disabled users (3 years). No theoretical and practical knowledge on creating portals, coding in voice xml and understanding plug-in integration. Less than 1-year theoretical and practical knowledge on using speech recognition tools. No practical knowledge and less than 1-year theoretical knowledge on designing assistive technology for disabled users (1 year).

The above skills have not been used in previous projects.

In the last five years an external online course (Webaim) was completed over a period of three weeks. The course was about web accessibility, legislation and international standards. More courses on evaluation techniques would have been useful. Ned felt he had to rely on others in the field.

Ned was blind.

Charlotte

Charlotte was not requested to complete the questionnaire as she said she was not the best person to participate in the telephone interview. Her participation in this project was to cover work areas whilst Erin was sick.

Peter

Peter who provided a demonstration on the use of screen readers by a blind person during the December 2001 meeting, was not asked to complete a questionnaire as he was not involved in the project. He was asked to provide a demonstration as a favour from partner four.

Partner 4: An Association for the blind in Italy

Michael

In 1972 completed a BSc Hons in Diploma Maturitá Scientifica (a 5-year course). Its discipline was Social Sciences.

Contributing to this project Computer Science, assistive technology and Management.

Perceived level of expertise is novice theoretical knowledge on using web authoring tools and understanding e-learning concepts. No theoretical knowledge on creating portals, coding in voice xml and no theoretical and practical knowledge on designing assistive technology for disabled users. Theoretical and practical novice knowledge on using speech recognition tools. Competent theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users. Expert theoretical and practical knowledge on working directly with disabled users.

2-4 years theoretical knowledge on using web authoring tools, understanding e-learning concepts, creating portals, understanding plug-in integration and designing assistive technology for disabled users. 8-10 years theoretical and practical knowledge on using speech recognition tools. 20 years + theoretical and practical knowledge on working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements.

The skills of working with disabled users have been used in four previous projects.

In the last five years he has attended a course on assessing needs of disabled users and identifying user requirements.

Eddie

In 1993 completed a five-year degree in Nuclear Engineering. The discipline of this subject was Engineering.

The disciplines, which are being contributed to this project, are Computer Science and assistive technology.

Perceived level of expertise on using web authoring tools and using speech recognition tools is advanced beginner with both theoretical and practical knowledge. Novice theoretical knowledge on using speech recognition tools, coding in voice xml and understanding plug-in integration. Advanced beginner, theoretical knowledge on understanding e-learning concepts. Competent theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users.

2-4 years theoretical and practical knowledge on using web authoring tools, using speech recognition tools and identifying accessibility of World Wide Web to disabled users. 2-4 years theoretical knowledge on understanding e-learning concepts, creating portals, coding in voice xml and understanding plug-in integration. 5-7 years theoretical and practical knowledge on assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users.

Has used many of the above skills in previous projects. Four projects working directly with disabled users and evaluating assistive technology for disabled users; three projects identifying accessibility of World Wide Web to disabled users; two projects assessing needs of disabled users and identifying user requirements and designing assistive technology for disabled users.

No courses had been attended or training received in the last five years, which was relevant to this project.

Partner 5: The Federation of the blind in France

Lucy

In 1991 completed a PhD in Doctorat d'Etat Francais en Philsophie The discipline of this degree was Research.

Contributing to this project administration related activities.

Perceived level of expertise on understanding e-learning concepts is competent theoretical knowledge. Competent practical knowledge on working directly with disabled users. Advanced beginner practical knowledge on assessing needs of disabled users and identifying user requirements. No theoretical or practical knowledge on using web authoring tools, creating portals, using speech recognition tools, coding in voice xml, understanding plug in integration, designing assistive technology for disabled users and evaluating assistive technology for disabled users.

5 years theoretical knowledge on understanding e-learning concepts. 16 years practical knowledge on working directly with disabled users. 5 years practical knowledge on assessing needs of disabled users and identifying user requirements. No expertise on using web authoring tools, creating portals, using speech recognition tools, coding in voice xml, understanding plug in integration, identifying accessibility of World Wide Web to disabled users, designing assistive technology for disabled users and evaluating assistive technology for disabled users.

Have used the following skills in previous projects. Understanding e-learning concepts in one previous project. Working directly with disabled users in seven projects and assessing needs of disabled users in six previous projects.

No courses had been attended or training received in the last five years, which was relevant to this project.

Partner 6: The German federation for blind and visually impaired people

Desmond

In 1995 a Dipl.Ing (A small degree for engineers in Germany) was completed in Electronic Communication Technology. The perceived discipline for this degree was Engineering.

Contributing to this project the following disciplines, Computing, Business and Management.

Perceived level of expertise on using web authoring tools is expert (both theoretical and practical). Competent theoretical knowledge on understanding e-learning concepts, coding in voice xml and designing assistive technology for disabled users. Competent theoretical and practical knowledge on creating portals and using speech recognition tools. Expert knowledge (both theoretical and practical) on understanding plug-in integration, working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users.

5-7 years practical knowledge and 8-10 years theoretical knowledge on using web-authoring tools. 2-4 years (theoretical and practical knowledge) on understanding e-learning concepts, creating portals, working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users. 5-7 years (theoretical and practical knowledge) on using speech recognition tools and understanding plug-in integration. 2-4 years theoretical knowledge on coding in voice xml and designing assistive technology for disabled users.

The above computing skills have been used in two previous projects.

No courses had been attended or training received in the last five years, which was relevant to this project.

Desmond was visually impaired.

Kevin

In 2003 completed a diploma in Informatiker (Computing Science). The disciplinary background of this subject was Computing.

Contributing to this project English-German translations and designing questionnaires.

Perceived level of expertise on using web-authoring tools and creating portals is competent practical knowledge and expert theoretical knowledge. Advanced beginner practical knowledge and expert theoretical knowledge on understanding e-learning concepts, using speech recognition tools, coding in voice xml and understanding plug in integration. Expert theoretical and practical knowledge on working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users, evaluating assistive technology for disabled users and 20 programming languages.

8-10 years theoretical and practical knowledge on using web-authoring tools and creating portals. 11-13 years theoretical knowledge on understanding e-learning concepts. 2-4 years practical knowledge on using speech recognition tools. 20 years + on working directly with disabled users. 2-4 years theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements. 8-10 years practical knowledge and 11-13 years theoretical knowledge on designing assistive technology for disabled users and evaluating assistive technology for disabled users. 20 years + theoretical and practical knowledge on programming.

Skills on using web-authoring tools have been used in two projects. Hard and software development in approximately 30 projects. Computer service and education in approximately 5 projects.

Did a 1-year diploma of work for the interpretation of web contents for blind and visually impaired people, in 2002 at the University of Hamburg.

Kevin was blind.

Paul

A request to complete the questionnaire was made to Paul, however he did not send the questionnaire back.

The following information was provided in the telephone interview in which he participated.

He is a member of a user group partner organization, so his main input into the project is user experience, as far as evaluating accessibility of internet content, looking at accessibility of software that is related to the project, that is the HTML editor and the e-learning editor that is hopefully going to be a result of the project. He also has general IT knowledge as a user when it comes to using screenreaders.

Paul is blind.

Partner 7: A non-profit making European organization for the blind and partially sighted

Ronnie

In 1966 completed a PhD in Philosophy of Science and a High School Degree in 1962. The perceived discipline for this degree was Social Science.

Contributing to this project dissemination, information on possible users and user organizations. As a result of his scientific oriented training, he tries to offer objective opinion of results rather than emotional or political.

Perceived level of expertise on using web-authoring tools (theoretical and practical knowledge) is none. So is theoretical and practical knowledge on creating portals, coding in voice xml, understanding plug-in integration, and designing assistive technology for disabled users. Novice theoretical knowledge on understanding e-learning concepts. Advanced beginner, practical knowledge on using speech recognition tools. Advanced beginner with theoretical knowledge on working directly with disabled users and identifying accessibility of World Wide Web to disabled users. Advanced beginner (theoretical and practical knowledge) on assessing needs of disabled users and identifying user requirements.

A little bit more than 2 years theoretical knowledge on understanding e-learning concepts and identifying accessibility of World Wide Web to disabled users. 3 years theoretical knowledge on using speech recognition tools. 5 years theoretical knowledge on working with disabled users. 8-10 years (theoretical and practical knowledge) on assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users. No theoretical or practical knowledge on using web authoring tools, creating portals, coding in voice xml, understanding plug in integration, and designing assistive technology for disabled users.

In two previous projects he has used the skills of identifying and evaluating user needs.

As it is too expensive to attend courses, he has read and studied material on the Tyreas web site, R&D program, IST materials and literature on digital information.

Ronnie was blind.

Thomas

In 1992 completed a baccalaureate in Economics. In 1994 completed a Deug in Social and Economics Administration. In 1996 completed a diploma in Havana Art School (Music). In 2002 completed a capacité en ortoptie. The disciplines for the subjects were as follows. Social and Economics Administration was Social Sciences (Economics). Havana Art School (Music) was Arts. Capacité en ortoptie was Health Sciences.

Contributing to this project prototype evaluation, users needs and dissemination.

Perceived level of expertise is competent practical knowledge on using web authoring tools, understanding e-learning concepts, understanding plug-in integration, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users. Advanced beginner theoretical knowledge and competent practical knowledge on creating portals. Advanced beginner practical knowledge on using speech recognition tools and designing assistive technology for disabled users. Practical novice knowledge on coding in voice xml. Expert practical knowledge on working directly with disabled users.

2-4 years practical knowledge on using web authoring tools, understanding e-learning concepts, creating portals, understanding plug –in integration, working directly with disabled users, identifying access of world web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users. Less than 1-year practical knowledge on using speech recognition tools, coding in voice xml and designing assistive technology for disabled users.

Has used many of the above skills in previous projects. Three projects using web authoring tools; two projects understanding E-learning concepts; creating portals; using speech recognition tools; identifying accessibility of World Wide Web to disabled users; designing assistive technology for disabled users and evaluating assistive technology for disabled users; one project coding in voice XML; two projects understanding plug-in integration; four projects working directly with disabled users and assessing needs of disabled users and identifying user requirements.

In the last five years has completed research on juridical aspect and French law for disabled people. Attended an internal 1-week course on assistive technology. Completed a 2-week Braille-Net course on accessibility problems for blind users and a 1-year start up course on HTML and web authoring tools.

Thomas was visually impaired.

Elsie

Was informed that Elsie left the project, therefore her questionnaire was not completed.

Morris

A request to complete the questionnaire was made to Morris, however he did not send the questionnaire back. The following information was provided in the telephone interview in which he participated.

His partner organisation is working on the building of an accessible portal, which would give access through an e-learning website and through other educational material such as encyclopaedia which is online etc. He plays no major play in this apart from being a blind user. He can go and see what the portal looks like, what the major accessibility problems are, although that is not really in the framework of the project. This is because user organisations involved in the project are supposed to do the evaluations. He is not evaluating, just giving hints to those that are setting up the portal. He also shares his experiences on major accessibility problems faced when surfing the Internet. They are also involved in dissemination amongst the visually impaired community. As director of their office, which deals with mainly information, he has a valuable database with contacts of information, people and institutions that can be reached in the framework of this program.

Morris was blind

Adam

Was informed that Adam left the project, therefore his questionnaire was not completed.

Adam was visually impaired.

Partner 8: A research group at a London university

Hazel

In 1988 completed a PhD in Psychology and a MSc in Information Science in 1991. In 1979 a BA Hons in Psychology was completed. The perceived disciplines for the BA and PhD were Social Sciences and the discipline for the MSc was Computing.

Contributing this project the following two disciplines, Psychology and Human Computer Interaction (HCI).

Perceived level of expertise is novice (both theoretical and practical knowledge) on using web-authoring tools and using speech recognition tools. Competent (both theoretical and practical knowledge) on understanding e-learning concepts. No expertise (both theoretical and practical knowledge) on creating portals, coding in voice xml and understanding plug-in integration. Expert (both theoretical and practical knowledge) on working directly with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users.

2-4 years (theoretical and practical knowledge) on using web authoring tools and understanding e-learning concepts. No (theoretical and practical knowledge) on coding in voice xml and understanding plug-in integration. She has 5-7 years (theoretical and practical knowledge) on using speech recognition tools and identifying accessibility of World Wide Web to disabled users. 11-13 years practical and 14-16 years theoretical knowledge on working directly with disabled users. 11-13 years (theoretical and practical knowledge) on assessing needs of disabled users and identifying user requirements, designing assistive technology for disabled users and evaluating assistive technology for disabled users.

There have been a number of skills, which have been mentioned that, have been used in previous projects. 20+ projects on working directly with disabled users, 5 projects identifying accessibility of World Wide Web to disabled users, 20+ projects on assessing needs of disabled users, 10+ projects on designing assistive technology and 10+ projects on evaluating assistive technology.

No courses had been attended or training received in the last five years, which was relevant to this project.

Mary

In 2002 completed a PhD in evaluation of educational multimedia and in 1997 BA Hons in Business Computing. The disciplinary background of the subject was Computing

Contributing to this project evaluation of e-learning and e-learning portal requirements elicitation.

Perceived level of expertise on using web-authoring tools is competent practical knowledge. Competent practical and expert theoretical knowledge on understanding e-learning concepts. Competent theoretical knowledge on creating portals. Novice practical knowledge on using speech recognition tools and working directly with disabled users. No theoretical or practical knowledge of coding in voice xml and understanding plug-in integration. Competent theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users.

5-7 years (theoretical and practical knowledge) on using web-authoring tools. 2-4 years (theoretical and practical knowledge) on understanding e-learning concepts. Less than 1 years theoretical knowledge on creating portals. Less than 1 years practical knowledge on using speech recognition tools and working directly with disabled users. Less than 1 years (theoretical and practical knowledge) on identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and evaluating assistive technology for disabled users. No expertise on coding in voice xml, understanding plug-in integration and designing assistive technology for disabled users.

No courses had been attended or training received in the last five years, which was relevant to this project.

Partner 9: Research group at a Belgium university

Charles

In 2001, completed a Graduate in the Complementary Studies in Computer Science (a one-year program). In 1998 a Licentiaat in Diploma of the Second Cycle (Licentiaat) in Linguistics and Literature: Germanic Languages (a two-year program). In 1995 completed a Kandidaat in Diploma of the First Cycle (Kandidaat) in Linguistics and Literature: Germanic Languages (a two-year program). The disciplinary background to Complementary Studies in Computer Science was Computing and for Linguistics and Literature it was Arts.

Contributing to this project the computing discipline (HTML, JavaScript, CSS, ASP, XML, Voice XML, accessibility and IMS).

Perceived level of expertise is competent theoretical knowledge and expert practical knowledge on using web-authoring tools. Advanced beginner with both theoretical and practical knowledge on understanding e-learning concepts. Novice theoretical knowledge and advanced beginner practical knowledge on creating portals. Practical novice knowledge and advanced beginner theoretical knowledge on using speech recognition tools, working directly with disabled users and UML. Advanced beginner practical knowledge on coding in voice xml (levels were higher 18 months ago, but this project hardly uses voice xml) and competent theoretical knowledge in coding in voice xml No practical knowledge on understanding plug-in integration (however he creates plug-ins and uses plug-ins for browsers and for programming on a daily basis). Novice theoretical knowledge on understanding plug-in integration. Expert theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users, HTML and XHTML, CSS, XML and DTD's. Novice practical knowledge and competent theoretical knowledge on assessing needs of disabled users and identifying user requirements. No theoretical or practical knowledge on evaluating assistive technology for disabled users and evaluating assistive technology for disabled users. Competent theoretical and practical knowledge on IMS QTI, XSLT and Java programming. Advanced beginner practical knowledge on ASP. Competent practical knowledge on JavaScript.

2-4 years theoretical knowledge and 5-7 years practical knowledge on using web-authoring tools. Less with disabled users, identifying accessibility of World Wide Web to disabled users, assessing needs of disabled users and identifying user requirements and IMS QTI. Less than 1-year practical knowledge and 2-4 years theoretical knowledge on using speech recognition tools and UML. 2-4 years theoretical and practical knowledge on coding in voice XMLl, XSLT, ASP, CSS, XML and DTD's and Java Programming. No practical knowledge, and less than 1-year theoretical knowledge on understanding plug-in integration. No theoretical or practical knowledge on designing assistive technology for disabled users and evaluating assistive technology for disabled users. 5-7 years theoretical and practical knowledge on HTML and XHTML and JavaScript.

Has used his skills on XSLT and HTML and XHTML in one project each before

In the last five years he has attended two external courses. A day course on Java and XML: The perfect couple? And Pragmatic modelling with UML, a 2-day course.

Jason

In 1977 completed a PhD in Applied Sciences. In 1968 completed an Electronics degree in Civil Engineering. The disciplinary backgrounds for both subjects was Engineering.

Contributing to this project the following disciplines, Software Engineering, project management, financial implications and human resource management. Less than 1 year theoretical and practical knowledge on understanding e-learning concepts, working directly Perceived level of expertise is competent theoretical and practical knowledge on using web-authoring tools Novice theoretical knowledge on understanding e-learning concepts. Advanced beginner with theoretical knowledge on creating portals, using speech recognition tools, coding in voice xml and understanding plug-in integration. Expert theoretical and practical knowledge on working directly with disabled users and identifying accessibility of World Wide Web to disabled users. Competent theoretical knowledge on assessing needs of disabled users and identifying user requirements. Competent practical knowledge and theoretical knowledge on designing assistive technology for disabled users. Expert theoretical knowledge on evaluating assistive technology for disabled users. Expert practical knowledge on project management and international collaboration. Competent practical knowledge on team management.

8-10 years theoretical knowledge on using web-authoring tools. Less than one year theoretical knowledge on understanding e-learning concepts. 2-4 years theoretical knowledge on creating portals, using speech recognition tools and coding in voice xml. No theoretical knowledge on understanding plug-in integration. 20 years + theoretical and practical knowledge on working directly with disabled users, electronics and optics (35 years) and international co-operation (20 years). 8-10 years theoretical and practical knowledge on identifying accessibility of World Wide Web to disabled users. 14- 16 years theoretical and practical knowledge on assessing needs of disabled users and identifying user requirements. 17-19 years theoretical and practical knowledge on designing assistive technology for disabled users and evaluating assistive technology for disabled users.

Has used many of the above skills in previous projects. Two projects using web authoring tools, 15 managing internal projects, four projects accessibility issues and 12 assistive technology projects

In the last 5 years has attended three external ½ day courses on XSLT, XFORMS and XML SAX handling. Also attended a ½ day internal course on editing tools.

In this project his main role is co-ordination of Partner 9's technical work.

Ben

Ben had left the project team by March 2002; as a result no questionnaire had been sent to him.

Venue: Partner 3 office, London

Attendees: Hazel, Paul, Ned, Fabian, Christopher, Annie, Jonathan, Ben, Charles, Charlotte, Michael, Michael's' translator, Lucy, Thomas, Morris, Desmond, Elsie, Jack Kenneth and Ronnie

[The meeting has been transcribed from approximately 10.15am as the dictaphone recording quality was low]

Overview of access technology and some of the issues and opportunities faced by visually impaired people using the Internet

Charlotte: Um we had one page where you had to enter in some details, and it said something like submit I think. It was obvious for the site, as it was the only button on the page. But with speech you have sort of categories of buttons and one button to find which one you thought it had to be but with magnification, people tended to hunt around the rest of the page to see if there were any other links. So the wordings of buttons is very important. Um, tables are another um problem with websites. Um, it depends on how old or how your screen reader is, how well it copes with the tables. But the newer screen readers will read the tables cell by cell and with tables marked up properly, with the newer screen readers you can press hotkeys and it will tell you what column and row you are in and the type of the column. But with the older screen reader you can't.
[Translator and Michael are whispering to each other]
Charlotte: So, when you are reading through a table it is a lot harder to actually get the information, because you have to remember what the headings of the tables are and where you are in the table. Um, So you will often see in websites, tables are actually used, well they are not really tabular information, they are used to make the layout look nice, and that can be very difficult for a screen reader user so that is something where, where people have used a table just to get the layout to look nice – it seems like an easier way of doing it, but it has caused problems for people using access technology. Um, forms are also a difficult thing to use, particularly with speech and um
forms need to be labeled um clearly so people know what information to enter and display.
[Paul and Fabian have their hands on there face]
Charlotte: And often the labeling on forms is done and people make it quite difficult to use by using various style sheets and quite often it will be cut of the page somewhere and it won't be read by a screen reader and the text and the edit box. The problems for partially sighted people can be that often the labels for an edit box are quite a long way away. They do not look that far away necessarily with the screen reader at its normal size, but if you magnified it up to about four or five times, then you can find when you click on the edit box, the magnification program will centre itself around the cursor and so you will see an edit box but you cannot actually see the labels of the edit box because it is often at the edge of the screen, and so you have to track across and find out what the box is actually called and then come back and enter the data. All of these things can be done but they may appear a lot harder for the blind or partially sighted person to use the system. And another problem that can be or happen quite frequently on websites is that you get the same information at the top of a website and on each page of the site. Um, Sometimes it is just a banner or a logo, and people can just skip over that, but quite often you have navigational information and it is the same at the top of each page, or down the left hand side of each page. So a blind user will hear the same information each time and that can either be just annoying, because you have to listen to the same old information each time, um, but it can actually make some people think that they have not done, they have not pressed anything. The link has not activated because nothing has happened and they have the same old text again, and so they think that nothing has happened and they have not done something and then they go back to look for that they actually just did and of course it is a completely new page and um they have not realized it and that will be confessing for them. Um, some pages they only update after the page, so they loose the top and the left stay the same and update a potion of the page to make it quicker and everything, and in that case sometimes the screen readers don't know that the page is updated so they do not do anything, so the pages are as you can see on the screen the screen reader as far as it is concerned it is still waiting and so people don't know if the system is very slow, or whether it has crashed or the fact that the new page has come up on the screen and they are simply not reading it. Um, [pause] and then we can ask people questions about um how they use access technology and show them some different sites and um let then come back in here afterwards for lunch.
Ronnie: I think I have just one, one question
Charlotte: Uh-huh. ***(Sub-state 1.1)***
Ronnie: One additional questions what are the braille outputs, uh, it seems to be uh
Charlotte: more people would use speech, Braille is, a speech program, a good speech program would cost about five, six hundred pounds, the braille display would cost about four thousand, so people do not usually have braille display at home and quite a lot of people um who use speech do not actually read braille. I think for the people who do read braille then speech and braille is the better option than just speech. It is not anywhere as common as speech.
[Whispering between Annie and Christopher]
Paul: If you have the option to use both the output media, braille and speech, except um that braille is expensive, and plus I find and so do many other blind users on the internet speech is often sufficient, braille can be good, but usually speech will do [*pause*]
Charlotte: the people I was talking to were Hazel, Kenneth and Ned. So, I will go and sort out the arrangements and make sure everyone is ready and everything and we will split into group and try these things out.
[Charlotte leaves the room at 10.40 am to go and check on the rooms]
[Hazel is showing how to use the mini disc player - I did not transcribe this part of the conversation]
[There are lots of conversations going on between the people that are sitting next door to each other. Cannot hear the conversations, and not all of them are speaking English]
[Go into a small room to see a demonstration]

Demonstration of screenreader use (Jaws) by a blind person using the Internet

Charlotte: …have a look at the screen and then the speech is the main thing that is being shown here anyway
Ben: Uh-huh. ***(Sub-state 1.1)***
Peter: ok, um I am Peter, I have been using the Internet for about six years I think. Um, we are using a standard computer with um JAWS software, which is a well-known speech. Um if you have questions or anything just ask
Ben: Uh-huh. ***(Sub-state 1.1)***
Jack: Uh-huh. ***(Sub-state 1.1)***
Peter: but um JAWs is um an international, its an America product, it owes it success to um windows, Microsoft windows and through different applications running under windows like um the Internet, spreadsheets, databases and navigating around
Ben: So JAWs is not only for Internet, it is for everything?
Peter: that's right. ***(Sub-state 1.1)***
Ben: its for windows
Peter: it is called a screen reader
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um, it is reading information from the keyboard
Ben: in any screen
Peter: um, well, yes and no. If, if there is, if there is graphical JAWs would misinterpret it ***(Sub-states 1.1, 2.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um, but it does, does work pretty well with the Internet, um that is of course dependent on how people design their websites. But on the whole you can do quite a lot with it and um shopping for example is one of the areas I am interested in. I use it home for grocery shopping, for Cd's , DVD's
Ben: uh-huh. ***(Sub-state 1.1)***
Jack : uh-huh. ***(Sub-state 1.1)***
Peter: books, ah electrical shopping and I just recently brought a deep freeze and I was able to go onto the internet and search around for the best product, the, the best price, which is of course something you can't normally do. Um people who can see normally can look at catalogues, look at brochures, get information that way, but I was able to use the Internet
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and by doing that I was able to save, I think it was about £70 of the normal retail price, which I think was pretty good going.
Jack: uh-huh. ***(Sub-state 1.1)***

Peter: um, so the, the internet for blind people is a fantastic resource, um in terms of shopping um I would say it is revolutionary because, because I do my grocery shopping online um from Tesco, which is one of the large supermarket chains in the UK. Um, partner 3 together with Tesco developed their, they have two websites, they have their standard website which is actually quite usable and they also developed a special access website for primarily visually impaired people, but also for people using dvd's and work surfaces and so there is less information on the screen and um uh-huh um and it is much easier to get there if you are using text, a system to some extent like JAWS is. Um so, I have got at the moment two sites loaded up, Tesco access and I have got Amazon, which is a UK version. Just to give you a contrast between sort of a site that is fairly straight forward and a site that is quite complicated, but nevertheless it is quite easy to use. Um, really a lot of the usage depends on how um, familiar the user would be with a particular site, um and that familiarity can really help and um so if we
[speakers says tab JAWs, all tab, Amazon dot co]
Peter: So if we start of with Amazon, there are about 200 or so links on the page, which at first sight seems quite complicated, but when you use it as often as I do to buy things you get quite familiar and you can get to the bits you want quite quickly. um,
[Speaker says all products, Amazon dot co]
Peter: What JAWs does is the user uses the keyboard instead of using the mouse, so the mouse is completely redundant when using JAWs. Um, for the Internet JAWs takes the webpage HTML code, um examines it, formats it into something that is meaningful, sorts out columns and tables and so on, um it, it also gives you a list, you can also find out a list of links on the page, or you can just move up and down the page to get to the appropriate information
[speaker says Amazon.co.uk welcome. It also describes the images on the page and the links]
[speaker says Amazon co dot welcome, image map link, view the contents of your shopping basket, image map link view your original products you would love to receive as gifts, image map link view or change the status of your recent order, or update your account details]
Peter: so it is reading back those links to me and it is telling me what the link is
[speaker says image map link]
Peter: um so for example, if you know what you want is going to be halfway down the page you can
*[*Peter *hits the key on the keyboard and you can hear the sound it is making]*
Peter: and get down to it quickly
*[*Peter *hits the key on the keyboard and you can hear the sound it is making – image map link]*
Peter: or um if you know what you are looking for
[speaker says Amazon co dot welcome, find [typing in the following characters] s-e-a-r-c-h enter all products. Image map link search]
Peter: so it, I've typed in search and it is taking me to the first thing that comes up with search on that page
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: or for example
[Speaker says Amazon and Peter *hits a key]*
Peter: because I know there is a search option on the page, I can do a short cut and um
*[*Peter *hits a key on the keyboard]*
Peter: and that takes me to the input field, where, where I would type in a search.
*[*Peter *hits a key on the keyboard and the speaker says enter all products]*Peter: We have now got a list of all products, books, DVDs etc
[Speaker says enter classical DVDs]
Peter: which I can then
*[*Peter *presses a key on the keyboards]*
Peter: which I can then choose, um I can then go back to the
[Speaker says search, edit]
Peter: the search button, the search input field and um type in for example a DVD, um
*[*Peter *types the following characters and the speakers say g-l-a-d-I-a-t-o-r-s]*
Peter: Let me just do that. I can now enter in this point the
[Speaker says tab, tab, go button]
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and then you can enter on that
*[*Peter *hits a key and the speaker says enter]*
Ben: so you use the old description
Peter: Yes. ***(Sub-state 1.1)***
[Speaker says DVD search, image map link browse categories, image map link]
Peter: So again JAWs will just start reading the page from top to bottom
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and then we can stop that and go down
[Speaker says page down, left, left 1996….]
Peter: I can go so far for example. There are quite a few of them
[Speaker says left all four items are shown - descriptions of items are also given]
Peter: yeah that is the one, so if I pressed enter on that one for example, it would give me more information, and then it would give me the links to actually buy it if I wanted to. Um, and again like Amazon you can set up one button and have your details stored so it would do it all in one click or you can go to checkout counter and enter your credit card details, and so which again is quite usable once you have got familiar with it. Ah, so this is quite a complicated site but with, with experience and usage um it is actually a very easy site to use.
Ben: And is it prepared more or less for accessibility?
Peter: No, no. ***(Sub-state 2.1)***
Ben: so there are for example the images they do not have the description
Peter: Um well
Ben: um I mean this one for example
[Pause – think pointing to something]
Ben: that are especially easy
Peter: No. It is a standard, a standard website ***(Sub-state 2.1)***
Ben: Ok. ***(Sub-state 1.1)***
Peter: That hasn't designed, and sometimes by a lack of or by a good design sites are pretty much accessible
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: Um, there are probably a few things you can do to make it better, but on the whole it is pretty, so for example something like image map link, which is a bit annoying, but once you get used to it, it is not a problem
[Speaker is on]
Ben: And you leave your images on
Peter: Yes. ***(Sub-state 1.1)***
Ben: because one of my colleagues is blind and he just puts them off
Peter: mhhm ***(Sub-state 1.1)***
Ben: and he does not want to see all the description because to him it does not matter
Peter: yeah. ***(Sub-state 1.1)***
Ben: Because he does not see the image show
Peter: some people say it is better to leave them on
Ben: yeah. Um ***(Sub-state 1.1)***
Peter: I guess that this is a pretty high access so it does not really matter
Ben: Yeah. ***(Sub-state 1.1)***
Peter: Cos it does not really affect the loading of the page, um
Ben: So JAWs is not really necessary?
Peter: For JAWs I think it is usually better to leave them on ***(Sub-state 2.1)***
Ben: to leave them on
Peter: yeah. Because sometimes it misses out if you do not ***(Sub-state 1.2)***

Ben: mhmm ***(Sub-state 1.1)***
Peter: on, on slower connections because I have a big difference on internal speed
Ben: Yeah. ***(Sub-state 1.1)***
Ben: um *[pauses]* so if I
[Speaker says alt tab, alt tab Tesco Int]
Peter: So I have now gone into the Tesco access site which
[Speaker says Tesco Internet superstore]
Peter: which is pretty straightforward, we have got about nine links on the page
[Speaker says link search, link help for first time customers, link view your favorite items, link view your shopping basket, link view your order history, link help]
Peter: So I use this, well maybe once a week maybe once every two weeks
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um, I can order *[pause]* say about 99% of my grocery shopping through the site. Um it is the delivered *[pause]* whenever I want it.
Ben: huh. ***(Sub-state 1.1)***
Peter: um [pause] my wife and I are both blind so it means that we do not have to go to the shops and get someone to help us choose the items that we actually want, which can be quite a traumatic process sometimes *[small laugh]*
Ben: huh. ***(Sub-state 1.1)***
Peter: um,
Ben: the Internet for you is a great thing
Peter: oh yeah, yeah. ***(Sub-state 1.1)***
Ben: A great improvement
Peter: As I say, it has revolutionized ***(Sub-state 1.1)***
Ben: yeah. ***(Sub-state 1.1)***
Peter: how I do certain things, um for exempla if I want to buy a CD, I can look at categories, I can look at the actual CDs and a get a listing of the tracks
Ben: mhmm ***(Sub-state 1.1)***
Peter: which is really useful. I mean if you go into a CD shop you um, you might get someone to read the information to you
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: then again you might not
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um, so yeah the internet for me is you know, I use it at work, I use it at home, um probably use it too much *[laughs]*
[Everyone laughs]
Peter: it is fantastic
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um we have *[pause]* um satellite tv and um one of the organizations *[pause]* um the talking TV organization, they have a list of the actual listing of most of the channels. So I can download that and look at it, you know on a day to day basis, so you are getting the information, it is becoming easier
Ben: uh-huh. Do you normally use a braille device? ***(Sub-state 1.1)***
Peter: I have one at work ***(Sub-state 1.1)***
Ben: um
Peter: um I, I actually have one at home which I sometimes use
Ben: mhmm ***(Sub-state 1.1)***
Peter: um *[pauses]*
Ben: Which is faster for you, to have it read or to use a
Peter: to, well to have it read is faster ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: if you are looking for accuracy, if for example you want to check a spelling or the information you have put into the search field, then the braille can be useful. Um, I am a very fast braille reader, but it is still not fast like using speech
Ben: uh-huh ***(Sub-state 1.1)***
Peter: I would most probably have JAWs working at a much faster speed than is available at the moment, so you just change the rate of the speech. Um, *[pauses]* so if we um,
[Speaker says Tesco, link view link, link search for enter, link search for products. This page has fourteen links, graphics are 4]
Peter: the speech quality on here is not very good because it is on a small laptop. But normally you would have it on headphones or coming out of more powerful speakers. So
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: it's much better
[Speaker displays the key hits]
Peter: so again you can search for items
[Peter hits the keys and the speaker plays this information, link ground coffee, link instant coffee, link filter coffee, link tea, link tea enter]
Peter: select tea for example,
[Speaker displays the tea, link herbal tea, link specialty mixed tea, link specialty teabags, link standard leaf tea, link standard, tea, link specialty teabag, enter specialty teabag, enter, page has 17 links]Peter: so it has the information in nice chunks or if you know what you are looking for, for example Earl Grey tea, you can just search for earl Grey
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and that will bring it up
[Speaker says there are thirty-eight products – description of products are given, including the size]
Peter: so if I um wanted to order that product for example, I would put in a one or a two or how many ever I wanted and then there is a add to basket button at the bottom, so you would go to go to shopping basket up from products or you have um a list of favorites that you have brought for however long you have been using the system. *[Pause]* so for example on my favorites there are 300 or 400 products that I may have brought once or twice or on a regular basis. So I can do the whole shopping in say half an hour or so
[Charles and Jack are making notes]
Ben: mhmm ***(Sub-state 1.1)***
Peter: and again it is familiarity, so once you use it a lot *[pause]* it becomes much easier, um
Ben: for example this is a table
Peter: huh. ***(Sub-state 1.1)***
Ben: How would you know to
Peter: well the table is /Peter *hits a key on the keyboard]*
Ben: you are moving this down
Peter: it is showing me
Ben: the one column
Peter: yeah. It is showing me each individual element, so it is *[Paul hits a key on the keyboard]* so it is showing you the description */speaker says 39 pence],* the price *[speaker says quantity]* quantity, and then you, you got the actual output field ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um I am not sure if you can move, I think you can move from section to section, but in entirety I am not quite sure how to do that with JAWs. Um, /Peter *hits keys on the keyboard]* so again that is all, I can use the screen search to *[Paul hits a key on the keyboard, the speaker gives a description of the Earl Grey teabag]* and then it takes me straight to that. It is taking me straight to that, that part of the table.
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um
Ben: on top of the page you can click on organic Earl Grey tea and so on
Peter: mhmm ***(Sub-state 1.1)***

Ben: teabags, 50 's and then below it is says 125g
Peter: yeah. ***(Sub-state 1.1)***
Ben: does it read it
[Can hear the speaker in the background]
Ben: together with the text, or is it on the next row
Peter: mhmm ***(Sub-state 1.1)***
[Can hear the speaker in the background]
Ben: how smart is the
Peter: yeah, yeah it is in the cell ***(Sub-state 1.1)***
Ben: so it is in the same cell
Peter: yeah, it is really that ***(Sub-state 1.1)***
Ben: so JAWs is pretty smart?
Peter: mhmm ***(Sub-state 1.1)***
Ben: not just line per line?
Peter: no. It does do some conversion ***(Sub-state 1.1)***
Ben: I understand, I understand. ***(Sub-state 1.1)***
Peter: um
[Speaker says tab each quantity, tab comments, tab description, tab]
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: so
Ben: so this site was developed especially for blind people? Or did you do it together with partner 3?
Peter: partner 3 worked with Tesco
Ben: with Tesco, Yeah. ***(Sub-state 1.1)***
Peter: to design the site and the implementation
Ben: and you reviewed it?
Peter: yeah. Um *[pause]* it, *[pause]* the main site for example is very good, it has a lot of information on it, um it is actually quite useable, um [pauses] again if you are an experienced user, but this cuts out a lot of the extra information and the graphics and so on. It is much easier to use, and um *[long pause]*
Ben: one of the keywords you have said, you are an experienced user ***(Sub-state 1.1)***
Peter: uh-huh. ***(Sub-state 1.1)***
Ben: and you have explained that this, it works for you, can you maybe show us an example of a page that is not well prepared, that is a problem for you or
Peter: mhmm ***(Sub-state 1.1)***
Ben: or explain
Peter: yeah, yeah. ***(Sub-state 1.1)***
Ben: what kinds of problems you find here or
Peter: if you have a site that is designed in say Flash
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: it is completely inaccessible
*[*Peter *hits a key on the keyboard and the speaker is on. The page has 23 links]*
Peter: that is wrong
*[*Peter *hits a key on the keyboard and the speaker is on. Access site page logo]*
Peter so *[pause]* *[*Peter *hits a key on the keyboard]*
Peter: which is a shame
Ben: uh, so if you want flash in your site you would have to have a pre site or a pre paid
Peter: yeah, yeah, you can have a flash link on the front page as well. ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: it can, it can
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: can make it completely inaccessible with flash
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: or people who cannot use it for whatever reason
*[*Peter *hits the keys on the keyboard]*
Peter: um so that one is pretty, unfortunately, it is a sore site, but it is um totally
Ben: um, and the first time you go to a page, because I guess that the Amazon and the Tesco is very familiar to you
Peter: uh-huh. ***(Sub-state 1.1)***
Ben: is it the same
Peter: yeah. ***(Sub-state 1.1)***
Ben: do you have an idea?
Peter: yes. You have to look around, it takes ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: it takes a bit of getting used to, um *[pause]* so it is probably slower looking at the screen, but you get a feel for it. Um, *[pauses]* I am trying to think of a *[pause]*. If you go to our site [partner 3]
[Speaker is on page had 41 links, graphic partner 3 logo, Reads out the name of the logo ..]
Peter: so again it will read the whole page
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: or I can get a list of the links
[Speaker says links list view, JAWs, new student web consortium, what's new, enter]
Peter: so it is cutting out all the text and is giving me a list of links, which again can be quite useful
[Speaker says [page has 44 links, partner 3, link 2001 Christmas catalogue, link cards, link graphics , link gifts, link toys,]
Peter: so again it would just read the *[speaker says link graphic card section, link religious graphic card section, link graphic cards .. choose from a wide selection of Christmas cards .. link browse cards]*
Peter: um *[pauses]* I also do things like listen to audio on the internet which can be quite useful as well. Um, you know there are a lot of radio stations around the world that broadcast
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um I have a *[pause]* account with an audio book publisher
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and you can actually buy books online and download them onto your PC, which is again very useful. So there are lots of *[pause]* lots of information you can download and look at. You have search engines and so on as well, which can be useful if you are looking for products or information. Um, at some point I use google, which is quite straightforward
[Speaker says open g-o-o-g-l-e-c-o-u-k enter http://www.... page has 14 links]
Peter: again we can go straight to the search box
*[*Peter *types in something in the keyboard]*
[Speaker says the page has 72 links]
Ben: is there a
Peter: sorry
Ben: is there a better way of working this
Peter: oh ok. ***(Sub-state 1.1)***
[Speaker says look up books on...]
Ben: is this the layout information or *[pauses]* or is it just completely useless, does it tell you when something is bold

Peter: it can tell you, but I guess that would only be useful if you were doing lots of word processing. For things like the Internet I do not personally think it is that useful ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: or interesting. Uh some people might, but JAWs will tell you different elements, uh things like colours, fonts, uh *[pause]* but you cannot get it to tell you different elements
Charles: is it not just switched on? Do you have power?
Peter: I do not know. Could be it is not switched on ***(Sub-state 3.1)***
[shuffling in the background]
Ben: mhmm ***(Sub-state 1.3***
[Speaker says copyright access]
Ben: because there is an alert box in the middle of the screen
[speaker says your battery is running low please save your...]
Peter: oh ok. ***(Sub-state 1.1)***
Ben: I think it was switched of
Peter: thank you. So um *[pauses]* there are of course a lot of search engines, some are more easier to use than others, um a lot of blind people are using google which is pretty straight forward
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and you do not have to use complicated Boolean search to actually get the information you want. *[pause]* um
[speaker says amazon dot co]
Peter: that is the example
[Speaker says combo box, enter videos, toys, auctions, classical music, dvd's, software, games]
*[*Peter *is typing something and the speaker is repeating the characters out loud]*
[Pause]
[Speaker describes what is on the page]
Peter: so you can even tell how many people have brought it, which is quite a useful indicator sometimes
[Speaker is talking]
Peter: so again we have a track listing that is very useful
Ben: so you have to put frames here?
Peter: huh. ***(Sub-state 1.1)***
Ben : so you can go from one frame the another?
Peter you can. ***(Sub-state 1.1)***
Ben: I can see you are in the right frame everytime?
Peter: uh, you should be able to, actually JAWs
Ben: I do not this is frames
Peter: it is. Usually JAWs would tell you if there is not enough room on the page ***(Sub-state 2.1)***
Someone: Uh-huh. ***(Sub-state 1.2)***
Peter: we can find that out.
[speaker says no frames found in the page]
Peter: No frames ok. It does not
Ben: so you make use of the tables to navigate
Peter: yeah, yeah. IF there were frames you could control tab to different frames ***(Sub-state 1.1)***
Ben: ok. ***(Sub-state 1.1)***
Charles: can you give me an example of where the visual layout, um [pauses] can hide what the real layout is behind that is?
Ben: yeah. ***(Sub-state 1.1)***
Charles: and um JAWs will need to handles things different to anyone using a table or braille or something whereas visually we are not that bothered.
Ben: yeah. ***(Sub-state 1.1)***
Charles: and someone will try and use an advanced concept simply to get a visual representation
Ben: Uh-huh. ***(Sub-state 1.1)***
Charles: to get it very much simpler
Ben: Yeah. ***(Sub-state 1.1)***
Charles: to get the access technology
Ben: Yeah. ***(Sub-state 1.1)***
Charles: but that is convenient so
Jack: yeah, but for example this is better for you than frames or ***(Sub-state 1.1)***
Peter: it does not really matter. ***(Sub-state 3.1)***
Jack: really matter ***(Sub-state 1.3)***
Peter: as long as the frames are labeled and so on
Jack: uh-huh. ***(Sub-state 1.1)***
Peter: and JAWs is able to pick it up and some sort of similar products, um but there are various screen readers around which would do the same thing. Um for me it is something linear, from top to bottom, I do not know where things are on the screen – but it does not matter really
Someone: Uh-huh. ***(Sub-state 1.1)***
Peter: as long as I am getting the, the right information, then it does not matter it is up here or down here on the screen. So visual layout for me really not matter
Someone: Uh-huh. ***(Sub-state 1.1)***
Peter: as long as you are getting the appropriate information at the appropriate point and you are not getting confused then [pause] it does not really matter. Umm just to be able to go to say for example to go and get a track listing or something for example, ah from different products, is nothing short of something revolutionary for me because to be able to actually find catalogue number, track listings, or compare prices of the same product from different suppliers and manufacturers is something that I have never been able to do before
Charles: is it reasonable to say that after your, um the value of Amazon do you actually know it is a site or
Peter: yeah. ***(Sub-state 1.1)***
Charles: or do you know more or less what you are expecting to see there?
Peter: familiarity can help, but provided that the site is pretty accessible then it is just a case of you know, getting to know it and the more you use it the more you get to know it and the easier it becomes. And some sites they are very easy to use because they are quite straightforward. Um Amazon has lots of links, but it's a case of once you know it, and providing it does not change too much then you can search for something and buy it within two or three minutes or sometime quicker. Um [pauses]
Jack: I am sorry to ask that, but can we see you ah entering in a new page for you, using
Peter: uh, yeah. ***(Sub-state 1.1)***
Jack: I don't know
Peter: if anyone wants to suggest anything I am happy to go there
Someone: um, you are looking for plane tickets to Iberia *[Pauses].* Is it
Peter: um [pause] there are lots of airline sites, um [pause]
Someone: if someone tells you that um you are on the radio
Ben: that ok you go to Ryan air.com
Peter: yeah. ***(Sub-state 1.1)***
Ben: and that you get very low fare tickets
Peter: huh. ***(Sub-state 1.1)***
Ben: and then *[pause]*
*[*Peter *is trying in r-y-a-n-a-I-r.-c-o-m]*
Peter: I have looked at it ages ago but um *[pauses]* lets try
[Speaker says page has 44 links./ Ryan air low fares airline. Top 3 ...]

Peter: so I could just let it read the whole page to me, uh huh
Ben: there is a scroll thing, I do not know what it is, yes use it
Charles: yes that is a scroll ***(Sub-state 1.1)***
[Speaker is playing in the background]
Charles: depending on what the form is
Ben: is this just a Java applet?
Someone: Huh. ***(Sub-state 1.1)***
[Speaker continues to play]
Peter: so this is identifying frames
Uh-huh. ***(Sub-state 1.1)***
[Speaker says tab, link destination, London, Stanstead, input field ...]
Peter: ok how do I get this fare link, and then we have to look at the fares below that
[Speaker is on]
Peter: so if I *[pause]*
[Speaker is on]
Peter: try and look up that one for example *[pause]* and see what happens
[Speaker says page has39 links]
[Speaker is on for a minute or two]
Paul:: oh ok, so that is presumably, click again in Dublin and it flies from Dublin to various locations. Um go back
Ben: can you get a listing of these images behind the image map?
[Speaker is on]
Peter: uh *[pause] [speaker is still on] [pause]* so, we are looking up a form here with a radio button. So if you choose the one way trip *[pause]* or go back and choose the round trip. Um from London, ok, um, [pause] ah ok, uh, *[speaker is playing in the background]* ah ok, hold on /Peter *is hitting keys on the keyboard]* you can't get cheap flights but nevermind, um yeah it is pretty successful, again it sort of depends on familiarity. But it takes a little bit of getting used to, for example clicking on a Dublin button, a Dublin link, so it has selected I supposed quickly all of the departures and as soon as I wanted to go to Dublin it only had that one as an option.
Charles: but that is a problem about the data that is behind
Peter: uh-huh. ***(Sub-state 1.1)***
Charles: the whole information process because Ryan air only fly from Gatwick to Dublin
Peter: oh, alright. ***(Sub-state 1.1)***
Charles: if you had gone to Stanstead you would have found a whole load more
Peter: got you. ***(Sub-state 1.1)***
Charles: but that is a problem that you would have
Peter: but would it actually show you that on the screen or is it
Charles: it does not show it on that screen at all its only as you select destin, um origin then you get the destination ***(Sub-state 2.1)***
Someone: Uh-huh. ***(Sub-state 1.2)***
Someone: Yeah. ***(Sub-state 1.2)***
Peter: so that is quite good I suppose, it does not actually highlight, it only shows what is possible
Charles: you have got that problem,
Someone: Uh-huh. ***(Sub-state 1.1)***
Charles: we all have that problem of actually trying to work out what is the information content is behind that
Peter: from my point of view, it is probably better if it was highlighted in a different colour
Charles: yeah. ***(Sub-state 1.1)***
Peter: the destinations, you would not necessarily which destination was which. It is quite clever from that point of view
Charles: huh. ***(Sub-state 1.1)***
Peter: um, *[pause]* so that is not an accessibility issue it is sort of I guess
Charles: the information
Ben: regarding accessibility, for example a flash page, um *[pause]* will JAWs work on it? Will it
Peter: if it is commonplace
Ben: to use flash on your website, for example to take text out of your flash image
Peter: no, no. ***(Sub-state 2.1)***
Ben: to take links out, I think it is possible because flash is just a text format
Peter: it does not work with flash at the moment at all, but micromdeia are working on this. Um [pause] quite often you will find that there is a flash option on the page as well, like that site I showed you earlier */Pause]* I think that was using flash ***(Sub-state 2.1)***
Ben: so the fact that the Internet and the technologies around the Internet is moving very fast
Peter: uh-huh, uh-huh. ***(Sub-state 1.1)***
Ben: is that not good for you? You don't like that I guess?
Peter: in some ways it is and in some ways it isn't. Um *[pause]* it um depends on if, if, if for example a company writes JAWS and there is another product called Windows eyes. ***(Sub-states 1.1 ad 2.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: I have been working with Adobe um acrobat um and PDFL is more accessible , um [pause] so you know there are constant developments and JAWs is constantly bringing out new versions maybe once or twice a year
Ben: uh
Peter: to keep up to date with for example Internet Explorer 5 and Internet Explorer 6, um and you know [pause] so it used to be the case that we would advocate you know, it is better to have something that is text only, but [pause] but JAWs is pretty sophisticated so you can make that use of more information that is not pure text
Ben: Uh-huh. ***(Sub-state 1.1)***
Peter: you have got forms and so on that you are using on this site and JAWs does work pretty well with it
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um so it is a case of knowing sometimes what you are looking for and knowing what to expect.
Ben: uh
Peter: Having an idea of concepts like radio buttons, list boxes, input fields, *[pause]* ah and all that can make a tremendous difference whether using the Internet or Windows itself. Um just to give you an example of Windows *[the speaker is on]* if we go to the control panel *[the speaker is on]*. Ok and if we go to display and we will check the *[speaker says display properties dialogue, background...]* so we can control tab to the next *[speaker is on combo box...]* and we can move up and down *[messaged box, windows standard...]* and we will leave that as it is
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um, *[speaker is on]* so it is telling me the, the fresh rate of the screen, it is telling me the *[pause]* pixel definition. 800 by 600, which is what JAWs, likes. Um *[speaker is on...]*
Ben: is this way of working unnatural to you because now, now what is happening with JAWs is that you have a visual um
Peter: it is. ***(Sub-state 1.1)***
Ben: a user interface for, for blind people and it is translated in some way to , to you
Peter: yeah. ***(Sub-state 1.1)***
Ben: to voice, would it be easier if you had your own way of ah
[Kenneth leaves the room at 11.40am]
Peter: um no. Well ***(Sub-state 2.1)***
Ben: of a dialogue system, that when you say ok what you want to do is I want to go to my screen proprieties
Peter: huh. ***(Sub-state 1.1)***
Ben: and that will give you the possibilities that is on screen and so on

Peter: I do not think, no I mean *[pause]* I have been using it for the last 20 years and obviously well I started of with well a BBC microcomputer and then moved onto DOS *[pause]* which is all textual, um I personally think that Windows is great because although it is visual you can do pretty sophisticated stuff with it if you have the right software. ***(Sub-state 2.1)***
Charlotte: Hi Peter, Can I um sort of um swap all the people in here to the other room and bring you in a new lot, because
Peter: can you just allow us 20 seconds or so
Charlotte: yep sure, give us a shout when you are ready, ***(Sub-state 1.1)***
Peter: ok, um so I mean JAWs interacts with it pretty well and once you are used to it, and again it is really being used to what you are using and ok I am a well a pretty sort of expert user ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: um *[pause]* I supposed that the main difference is that to someone like me it is not obvious what you have to do, um *[pause]* whereas if you are looking a the screen it is pretty obvious
Ben: but you have to learn the concepts?
Peter: yeah, you have to learn the concepts ***(Sub-state 1.1)***
Ben: that we would have to learn what a tab is
Peter: no. ***(Sub-state 2.1)***
Ben: so if I tell my mother for example
Peter: that's right. ***(Sub-state 1.1)***
Ben: click on the tab, what, what is the tab, oh this thing
Peter: yeah, yeah. ***(Sub-state 1.1)***
Ben: so she sees it
Peter: that's right. ***(Sub-state 1.1)***
Ben: you knows these concepts
Peter: yeah, there is that difference, but ***(Sub-state 1.1)***
Peter: what you have to be a more expert user to be able to use a computer?
Peter: yeah, um well I think people have used computers to a different degree, where I would do things like install software ***(Sub-state 1.1)***
Ben: uh
Peter: install windows, I will install hard drives and all sorts of things into the computer itself, other people would just it for very simple word processing and the internet, other people will do a bit more. Um, [pause] so you have to learn concepts and you have to learn what radio buttons are, what combo boxes are and it does not matter you know what they are but what to do
Ben: uh
Peter: because it is obvious. So yes, concepts are important and we do for example have a book that describes windows from a visually impaired person's point of view
Ben: uh
Peter: um, *[pause]* but I think it is better that we can do it *[pause]* to quite a degree with what is available
Ben: uh
Peter: rather than having a special authoring system designed for blind people
Ben: uh-huh. ***(Sub-state 1.1)***
Peter: and it is the same with the Internet, a lot of the sites are accessible
Ben: ok. ***(Sub-state 1.1)***
Jack: Alright. ***(Sub-state 1.1)***
Peter: thank you, I hope you found you found that useful
Charles: thank you
Sajal : thank you
[All leave the room at 11.45am]
[The meeting resumed again at 1.30pm after lunch. The seating arrangements were the same as the morning]

Change to the agenda

Charlotte: ok there is a slight change to the agenda that I sent around and in that we need to be out of this room earlier, um so Desmond will do and Paul will do their presentation on screen readers and after that there will be more opportunities for people to try out the speech and magnification systems themselves and um anyone who did not see quite what they wanted to this morning or try something out there will be more of a chance to do that. And um that will finish at four and then we can have any other further questions until half past four and then we need to finish in this room at half past four. I will now hand over to Desmond and Paul
Ronnie: Can I say something please before they start, I think there is a need to um to spend at least half an hour of the afternoon discussing the general structure and the general problems of the project, [pause] I will tell you later on the reason for this, I think um this kind of exercise to look at these special technologies etc is not for all of us. We have already spent some of the time during the morning [pause]. It was an exercise that I do not think was useful for all of us and I think we should really use part of our time in the afternoon to discuss very very important and, and essential issues for our project, because I think there must be some rethinking and there must be some suggestions to put forward in order to clarify at, at least um from a general point of view some aspects of the project from our point of view are not sufficiently clear. So I think that we should leave the exercise of the technology and straight after the presentation go onto discuss those methods. Thank you.
[Michael's' translator and him are whispering to each other]
Charlotte: Hazel do you want to comment on that or sort of, I do not know what we are discussing tomorrow so, ***(Sub-state 3.1)***
Hazel: yes. I mean I did not set the agenda for tomorrow so given that this afternoon is the only time we have to have to spend more time looking at the technology, I am not really sure what the best plan is. I think we [pause] because I agree with both sides of the story is the problem. ***(Sub-state 1.3)***
[Ronnie laughs]
Hazel: I am modestly taught, so Jack
Jack: err I said in the agenda tomorrow afternoon is this work package 1 follow up and conclusion, that was the point where we had to discuss how the project is going, what the problems are, so more in the sense of your suggestions
Charlotte: and this afternoon is the only other time we will have the machines with access technology on there
Somone: Uh-huh. ***(Sub-state 1.1)***
Charlotte: so if, who, would people find it useful to go over the technology and try it out for themselves?
Someone: Um
Someone: Um how
Ronnie: we could ask who needs to do it and then see
Paul: Right who actually wants to have some hands on work with the technology this afternoon, who needs that?
[Pause]
Charlotte: who would like to try the technology this afternoon?
[Muttering in the background]
Someone: all the technical partners
Charlotte: ok. 1-2-3-4-5, that is quite a number of people, did you two say yes ***(Sub-state 1.1)***
Ben: yes ***(Sub-state 1.1)***
Charles: yes ***Sub-state 1.1)***
Charlotte: ok. That is seven people and [pauses] so seven people would like to try the technology. Um I think that since today is the only time the technology available ***(Sub-state 1.1)***
Desmond: I understand that. ***(Sub-state 1.1)***
Charlotte: we give people the time to do so
Desmond: the advantage would be that Peter has to leave this evening and I have to leave tomorrow at a quarter to twelve or one o clock and I could not be there
Hazel: can I
Desmond: tomorrow

Hazel: can I suggest a compromise and suggest that we swap the morning and the afternoon around for tomorrow, so that,
Fabian: no, no, not possible for me I have to leave also at one or so tomorrow ***(Sub-state 2.1)***
Hazel: right. ***(Sub-state 1.2)***
Somene: this small coordination points and then the more technical focus for the afternoon
Paul: But for future meetings like that I would really would suggest, that if there should arise the necessity to look at technology again from some other point of view then we really should try and plan things differently. Because I know that for some of us it has really been, I am sorry to say that but straight up and straight forward this, this morning has been a waste of time. I realize that some of you really need to know the technology and need to look at it but I really think that this is not the way to really deal with it while there are several people here who had to travel here yesterday and spend time, and we all do other things and we are all on busy schedules, so I really think this needs to be planned a little more carefully, so we will not have another meeting like this, if ever um [pause] opportunity should, necessity should arise to look at technology again. I am not going to say more, I do not want to take more time away from you
Ronnie: so lets organize if possible the afternoon that we have at least half an hour before leaving open for discussion
Someone: Uh-huh. ***(Sub-state 1.1)***
Ronnie: to concentrate on the technology
Someone: Yeah. ***(Sub-state 1.1)***
Ronnie: moment and then from four o'clock to half past four to make a general discussion because we are all here. Many of us will not be there tomorrow, even some from Spain who are the project leaders, so I think we must do it.
Jonathan: that is not a problem, half an hour ***(Sub-state 1.1)***
Charlotte: is that a problem?
Kenneth: Male: I would suggest that we are going to do that, it would be better to follow immediately after the presentation, with that discussion
Hazel: I would agree. ***(Sub-state 1.1)***
Kenneth: then it would allow those people that want to stay on and look at technology can and those that don't can go back to their hotels and whatever
Charlotte: we can look at the technology till half past four, I just need to pack up the computers and everything for um five, so, um we can still do that.
Hazel: yes. ***(Sub-state 1.1)***
Charlotte: And can we make sure that we break that discussion um after half an hour, then there will still be time to look at the technology
Ronnie: but we really do it in the interest of the project
Peter: ok. Lets get started *[pause]* ***(Sub-state 1.1)***

Overview of the market for access technology

Desmond: hello again I am Desmond from partner 6m and I want to give you this short presentation on visually impaired people. Um first we, I wants to show you what you have seen in the morning, a support tool for blind and visually impaired people. Um, first is the braille display, so we can feel it with the fingers, voice output, and magnification screens what we have already seen.
Charlotte: uh-huh. ***(Sub-state 1.1)***
Desmond: *[pause]* a screen reader is an interface between the operating system and the output device as you have seen. We have the operating system, screen that is between it and instead of all the optical information we have the acoustic information and the conversion works from the G-U-I – the graphical user interface to the voice. Oh the question mark here should be an arrow from left to right [laughs] um and what is very important is to use key operations instead of mouse use because um a blind man cannot use the mouse, and the keys should be extended keys of course. [Pause] this is an example of um JAWs, you see this is a braille output, a control output for um um somebody who wants to help a blind user and for the standard Microsoft Word. This is what a blind man can read, from the beginning, starting word. [Pause] the second thing is the magnification screens, you have a pixel magnification up to 32 times , and um only a section of the screen is available. Um you would need special features for colours and contrasts and first feature which the magnifications screens have is that colours can be inverted and sometimes it has a contrast, only some of the tools have the feature that you change all the colours, give me blue instead of red for example. [Pause] and um an integrated screen reader is recommended of course and so you have a magnificated screen and you have at the same time voice output or braille output, depending on what you want. [Pause] here is an example for Zoomtext, I think you have seen it, Zoomtext, it is a magnification of four times and we can go onto a sixteen times magnification so we can see it on the screen. What you see is the graphics and the fonts moving in this window and the pixel presentation of the internet explorer would be partly readable for someone who is visually impaired and needs it quite big. So fonts moving is very important in this case. [Pause] now we come on to the most interesting part for us, the web tools and the specialized browsers. We offer three parts, three types of web support. The first is a standalone specialized browser, for example the IBM homepage reader. [Pause] and we have additional tools you can use with Internet Explorer , for example the web formator or web wizard and um the web wizard you can use in addition with Virgil screen readers and [pause] the web formator you can use with Windows and Linux or any screen readers, ok, but it is made by the same firm. And you have an integral complement screen reader from the magnification system. This is for example JAWs. JAWs is this virtual cursor or zoom text has its own screen reading complement. [pause] So the system requirements, first we have to have a look at which operating system is mainly be used and we have to to make a choice this way. The installation of the Microsoft accessibility um [pause and then talks to Peter] [laughs] um Microsoft accessibility architecture should be on your system installed and most of the web tools needed. And you should have a look to see which particular web browser is needed, for homepage reader, need Netscape Navigator and for newer versions 3,0 or up or later and need Internet Explorer. And [pauses] um wait one moment. Yes and you should be able to optimize the browser settings like you can do with the Internet Explorer for example, for font size, colours, etc. And um we can have a look at the installation of Web Access, um [pause]
Paul: um for example the web tools that Microsoft offers with Internet Explorer 5 and up, it used to be [pauses] they have a different name in version 4 and I forget. But that is basically the, the special features that are made available by producers such as Microsoft to enhance products such as the Internet Explorer. There are, I think for Netscape Navigator there will be a feature introduced in the next version, but we do not know about that yet, so we better not talk about that yet.
Desmond: ok we have to see whether any modifications have to be made for the use of a particular screen reader. [Pause] installation and de-installation this should be um very easy to use and should be independent [pause] yes the user could make it independent of any seams, for example when you install Zoomtext your are guided through voice and you can do it by yourself ***(Sub-state 1.1)***
[End of cassette]
[The next cassette is on]
Desmond: [laughs] can be much faster than me [laughs] the dial up networking should be very good, and setting it up as a blind user for the first time will be very hard to do and the settings as well. Yes, um, the installation should be absolutely complete. Like in other applications some DFL files keep making your systems slower [pause]
[Whispering in the background]
Desmond: the display properties I told you about should be adapted of course and [pause]
Paul: ok the display properties for example in order to modify them for speech or braille use, um one important feature is um ignoring colours and ignoring font types on web pages that would be for example interesting for a visually impaired user who has some residual vision using speed magnification who wants to set up there own colours and back box for example, that sort of thing
[whispering in the background] ***(Sub-state 1.1)***
Desmond: yes and the shortcuts should be standard short cuts and the old version of the homepage reader for example is the the number block for the navigation and you first have to go to all of these new standards for navigation, and there should be of course standards for shortcuts and internet explorer for example. ***(Sub-state 1.1)***
Paul: Did you have a meaning system like a regular windows type application in the older version of the homepage reader for example. Or some of you maybe familiar with PW Webspeak, also a talking browser which was very non – standard in its layout
[pause]
Desmond: so the next point you want to see what functions are strictly supported by specialist web browser. There are i suppose various display modes that you have heard of in the morning and the number, I know first the display modes if you are just wanting to read plain text there should be plain text that is displayed, and if you want to read tables, a special table mode should be displayed or given out in speech or braille or if you have to fill out forms, html forms there should be a special mode so you do not move into a text while you are filling out a form. So are just filling out forms. Um the text you are reading should be edited, you should have the possibility to edit the text. For example to copy it into a Notepad or something like this to edit or Wordpad and a simple reading mode, a doc reader mode for exempla and you have a word document and you download it and then go into Microsoft Word to read it [pause] between the navigating. And some special features, for example the search function, it is absolutely visual in Internet explorer and you have to have a search function with a specialist Internet tool. And the kind of speech output should be short, should be just the link, should be the site behind the link showing only the alternative text behind it and all of these things should be customizable. Um [pause] the text which is repeated sometimes on the pages and on the tops of the pages should be ignored like we did in the morning already, and otherwise someone who is blind could think he is on the same webpage. And the type of link, do you have a downloading link or is it just a html link or is it um a doc file behind it or an MP3 file, or something like this or an audio file. The type of link, the type of link must be announced as sometimes or very often it is missing. [Pause] Ok, navigation choices, [pause] um the document must be reformatted sometimes um going down sometimes, for example the F5 key to refresh the screen, the send function must be followed by display and the speech output available, and [pause] and the focus, or the links that have focus must be announced very clearly. This is very often the missing function in modern tools. Your focus is somewhere and you actually do not know where you really are on your webpage. [Pause] um, and you have to be able to select a particular frame, this is um missing o sometimes on both sides. The frame must have a proper title so you can, can differ between all of the frames on your webiste and you have to make, have to have a possibility to make a list of these frames. So you can directly move over to this frame and um navigate inside of it, [um [pause] um yes jump functions, blocks of text and next to size, next link, next table, and all of these things must be possible of course. [Pause] and then give us the automatic moving on top of the page whether you reached the bottom of the page. For example a feature of the homepage reader is that is automatically [pauses] many things must be listed, because a blind user is reading sequentially and all of the information is going down and forward [laughs] and he has to keep it mind obviously and he has to make a list of the different features – these are the links, frames, headings, tables on the website or the buttons, check boxes, pull down menus, um pull down menus are sometimes very hard to read, because they list the different countries in the world, up to120 sometimes [laughs] 120 different lengths if you can navigate on. This is a very important thing. Um, yes a list of forms, graphical elements, graphics elements and a summary of the webpage which is the content of the webpage for example and the information again about the current position, focus on the webpage is often missing. [Pause] Must of course adhere to the current web standards, and must even support something like Flash or simply announce it. a lot of browsers just ignore it. Um standard e-mail functionality should be integrated of course and the browser options and settings, for example the colours and the size of the fonts and all of these things. And you have functions that should of course be extended and should be available in braille and should be um audio, and the online help should be um um fixed length [laughs] I think you understand what I mean. So now let's get to our market overview. The main screen readers in use in Europe, I only have listed five of them, although we have twenty many used in Europe, um JAWs, Window I, Lindows um and Viego. I think JAWs is for most [pause] wide [pause] widely used and Windows I's is often used in the United Kingdom and Lindows or Lind-ows is very often used in Germany [pause] Hams is more of an international feature and Viego is only used in some, I saw it is used in Italy for example, Germany [pause], yes these are the main screen readers. [pause] we have common features of course, the braille output, the speech output and the compatibility with standard applications, if you for example use some shareware applications the system often crashes.

[Whispering in the background]
Paul: there is one feature that is very typical for, for most screen readers say like Jaws or Windows I's . they use applications specific, uh scripts or set files. Whereas some other screen readers such as for example Super Nova or um Lindows they will try to [pause] manage to yield with it and many applications just out of the box without special set files or scripts. I mean there is a different philosophy that can be approached
[Whispering in the background]
Desmond: ok common problem features of these products are set without focussing and sometimes you just get the cursor into the word and it isn't read and you have to get two or three characters and only at this point the word is read or the sentence behind it and it is a little bit too late. Um the multimedia compatibility and support, for example real [pause] audio files. Some points I told you in the first section for the requirements we need are still not realized in these tools [pause] lets get over to the screen magnification software mainly used in Europe , again Zoom Text, Una which can be combined with the screen reader Hel, magic, pro vision 32 and aragus 3001. Argue is a simple screen magnification software, oh Jack you can have a copy of the presentation if you want ***(Sub-state 1.1)***
Jack: yeah. ***(Sub-state 1.1)***
Desmond: yeah. You can copy it from disc to the computer, or I can send it to you ***(Sub-state 1.1)***
Jack: or you can put it on the FTP [pause] address
Someone: put it on the FTP site
Jack: or mailing
Desmond: yes I will put it on the FTP site ***(Sub-state 1.1)***
Jack: yeah. ***(Sub-state 1.1)***
Detelf: ok Ok the complete hardware screen magnification software should be usable with any operating system. Sometimes it does not work but mostly it does work. [Pause] So, common features, magnification up to 16 x 32 times, um coloured version, they all provide and basic screen reader, screen reader functions for example Zoom Text or Una on Magic have integrated doc reader when you navigate through Windows. And um [pause] JAWs screen reader can be added to the application tool. I think most of the tools work together with JAWs. ***(Sub-state 1.1)***
[Laughs]
Desmond: so the problem features, for example fonts moving as you see in the Internet Explorer with a small font. When you change the background colour in the Zoomtext for example to blue the form will
Not be smooth anymore, someone visually impaired cannot read it anymore. It is a problem with um [pause] Zoomtext and other magnification systems. As I told you the doc reader is a problem as well. Well you tell him to read the whole sentence, sometimes he is only reading to the end of the line and you want to go on. You press for example the space block and you move onto the next sentence
Someone: paragraph ***(Sub-state 2.1)***
Desmond: paragraph , and the rest of the text is missing [pause] and the focussing as well as the screen reader function [pause] it is problem with the magnification systems and the shortcut, some shortcuts um, um have the same combination, like the Standard Windows combination. So the system does not recognize it and you have to change the type. But most of the times this is not a problem anymore because it is a problem only when you first install it. [Pause] so what web tools do we have mainly. First and I think the best developed at the moment is the homepage reader from IBM. The second one and the third one is the Web Formater and Web Wizard as I told you before, could be used with any screen reader and Jaws has the integrated Internet search function. [Pause] Um yes common features, the standard brassware is obligatory, for example internet explorer there is a different section between texts and links and sometimes even more, tables for example and um we have various list functions, list, table, create forms etc. Problem features are focussing, table reading words are often a problem, for example in web wizard you are not told where you concretely are and um the pointing of problematic elements like flash, um should be [pause] what do you say? ***(Sub-state 1.2)***
Paul: Desirable
Desmond: it should be desirable, that when an element has an art attack, which the screen reader or web tool tells you, yes it is an element with a link but I do not have any text for it. it could be enough for someone who can see Yes, that's it, that's my short overview, I hope I have given you some useful information ***(Sub-state 1.1)***
[Whispering and chatter – but cannot hear what is being said]
Paul: it would have been nice to have had some more input especially of products that are only nationally available. For example like I would imagine products like the Web Wizard and the Web Formator which are both German products that are being made available through the websites of the respective companies, they may be known in some other countries but I'm almost positive that there are similar developments in other member countries of the project and would have been nice for, or [pause] would still be nice if you do have some information along those lines that you can pass it on, so that we can, the overview will be more complete as time goes on.
[Whispering]
Desmond: Do you have any questions?
[Shuffling in the background]
Ronnie: There was a distinction uh during the morning session at the beginning between old and new, older and newer screen readers. What is the substantial improvement of the new ones in connection with accessibility?
Desmond: the older ones for example have absolutely no web functions
Ronnie: sorry
Desmond: the older ones for example, have absolutely no web functions, some of the older screen readers do not work with modern Windows versions
Ronnie: I mean just those of the Windows era, not the other ones I think
Paul: for example in the latest versions of pretty much all of the screen reader except maybe Super Nova, I am not too familiar with that one, there is an MSA support which I think is crucial, especially for web applications and we have um [pause] especially in those screen readers that use Set files or scripts, obviously as time goes on, new and more scripts and set files are being added so that um the new screen readers have quite an impressive library of applications that are um being made available. Things that normally or things that would not normally work straight out of the box are being made possible by using Set files or um application scripting.
Ronnie: would it be possible to make um informal, informally kind of [pause] of uh the grade of which screen readers would you suggest as the best in this very moment?
[Pause]
Paul: is is very hard to say Super Nova is supposed to be quite good from what we hear But I guess our British colleages can probably say more about that, if they have had an opportunity to really well play around with it because it has not been out for that long, but other than that um, at the time being there is probably three screen readers that are more or less equal. That would be JAWs and Window I's from the other side of the big pond and Lindows from the European side. Um these three, [pause] JAWs and Window I's do have their own integral accessibility features, which is JAWs is called the virtual cursor and Window I is called the MSA mode and Windows uses this web formator tool and so I get the impression that not only from my own experience and my own use of the screen reader, but also what I hear from other people and user groups is that's probably at the moment these three, certainly the top three screen readers, they are pretty close and pretty equal. ***(Sub-state 3.1)***
[Whispering]
Ned: I would just say um Super Nova I do not think it is um it is certainly internet ready, um Super Nova I do not think it has the accessibility features ***(Sub-state 1.1)***
Ben: mhmm ***(Sub-state 1.1)***
Ned: Although it's getting there
Ben: We can use Super Nova I think in combination with Web Formator
Paul: Yeah. ***(Sub-state 1.1)***
Ben: I have heard that people do that
Paul: yep. ***(Sub-state 1.1)***
Ben: to serve on the web
Paul: there are actually people who are using very inexpensive screen readers such as the Lookout for example, in combination with the web formator, which works extremely well
[Pause]
Paul: Lookout sells for £49
[Pause]
Jack: ok, if there are no questions then we can go on with the agenda ***(Sub-state 1.1)***
Paul: not as far as we are concerned anyway. ***(Sub-state 1.1)***

Discussion

Jonathan: not to the agenda but to the new point, so we can now have time to talk about the new point, so we can talk about problems that you have [pause] um that you want to, to put on the table now before going on about the project or maybe we can start. Do you have any suggestions:
Ronnie: Ok, thank you very much. Will not take, will not take very much time, but I would like to [pause] um express some thoughts about the present um situation we are facing now and see if it would be possible, possible to have a reflection on that. First of all I would say that in the [pause] in reading, looking at the project, the first and the um, most important impression of the project is it is very interesting and that it could really have some interesting developments for blind or visually impaired users. [Pause] so no doubt about this [pause] the problem for us is that looking at the project and anaslying our specific, our specific task [pause] we realized that something is not very clear to us. And discussing with other colleagues and um from some information I have received from the evaluation team on the European Commission [pause] something is um a little bit confusing in the project structure, um [pause] in the project framework, project presentation the e- learning aspect is the most important because everything is, everything is existing around this e – learning central issue. And all of the projects should then be constructed towards the realization of something that offers a demonstration of how e- learning can be made accessible in a very effective way for users and not only for users but also for um developers in the field of visually impaired people. [Pause] but then when we look at the structure of the project we see that at the end the space which has been made available for working on e – learning is a little bit restricted [pause] and for example our specific barrier, our specific eproxipications to the work packages is very limited. So we do not have the possibility to interact, we do no have the possibility of interacting um very effectively in the different work packages when and where necessary and that our time frame in the project is very limited, so that we should concentrate the work allocated to us in a very short time with a very broad, very broad [pause] um scale. So, we think we should have, we should consider the central issue of this project to be the [pause] e – learning dimension and that the technological aspect should be organized and oriented in order to resolve as an instrument, as a tool for this as it is in the [pause] specific in the project presentation. [pause] that would assume that we should try and not change for example the amount of money available for us, because we think we have enough resources to work. But for example to try and see if we can include, include us in the activities of other work packages, so we do not ask for a reallocation of resources we would like to ask a little bit on reallocation of tasks. You also have all, you are also all aware that the duration of this project has been um now set for a one-year period. I would inform you about a very confidential, an extremely confidential information I have. And that, a restriction to a one year period was the result of a discussion in the evaluating committee [pause] when um they um had different opinions regarding our project and there was some criticism – how we had organized, how this project has been structured. [Pause] and this is quite strange because the commission has had all the possibilities to influence the structure of the project, but this is something which we cannot [pause] um, lets say cannot influence from our side, from our point of view. The consequence of this is that when the first year of our project will be concluded there will be very very tough and very careful evaluation, probably more careful than ordinary, and there are some aspects in our project which are assuming, which are a little bit too general. And with the help of ours we have to consider that around this table we have a group of specialists, a group of people of people who are extremely, are extremely competent in this area [pause]. A group of people who are um have been working on these issues for many many years [pause] . I think that all this knowledge and all these capabilities should be possibly co-ordinated a little bit more, in a little bit more effective way. I would really um apologize for, for this kind of presentation, which seems to be critical, but it is not. It does not want to be critical. It, it, the, the, what I would like to, to ob, obtain with what I say is that this project has very very interesting possibilities. We have all of the resources, the intellectual, the technical information resources, everything is present in our group. My feeling is that there is a [pause] not sufficient coordination and that there is not sufficient work to be done together by all of us. [Pause] Um in order to have a general participation and general um a general com-division, um a general participation in the project activities. So I would suggest that we try and discuss how we could do it better and how we could all take advantage of our respective experiences. We have universities, we have user organizations, we have highly technological competencies. I think that the general framework existing now, how I see it does not reflect this high quality of all the project members and the capabilities and the possibilities we have all together. So I think we should improve this, um [pause] we should try at least to improve this and better use and better coordinate our energies and our knowledge. And um this is the, the general remark I would like to make. Please take it as a very constructive proposal, which is in the interest of having our project dealt with until the end, until the end with great success and with good results. Thank you very much
[Everyone was carefully listening while Ronnie was talking]
[Whispering between Christopher and Annie]
Annie: We at partner 2 say that we totally agree with you and were going to bring up that issue tomorrow that ***(Sub-state 1.1)***
Morris: Louder please, sorry
Annie: I will repeat all of it. I would say that from partner 2 we are, we agree with you. And we were going to bring that issue tomorrow, that we feel that maybe the coordination is not being tackled enough and that we are kind of, we need more follow up on the work we are doing each of us and more communication between us ***(Sub-state 1.1)***
[Whispering in the background]
Kenneth: Could I comment on one part of what was said and whereas I have no doubt that you are correct in what you say happened during the evaluation committee. The um reason that is, the one main reason why this project was uh given this extra review after a year because all, was because all projects on this call were given an annual review and were only awarded a one year contract in order to speed up the um negotiation phase. Um, the reality is that um for us we started two projects one month apart, this one started one started a month after the one from the previous call and the negotiation phase was very um by the process that they went through. They said that at the negotiation day in Brussels they were not going to ask us to take any cut in the budget at that stage, nor were they going to ask us for any significant changes in the project program which would not be the norm for negotiation because they wanted to speed things up and then re-negotiate things at the end of the year. We know that therefore, we have always known that this contract [whispering in the background] would in for a stiff review after the first year with the possibility of cancellation. That was one of the things that we were told, all of the projects were told at the same time, now that is the general thing for this, so whereas I can understand why the evaluation committee may well have a difference in opinion and I can imagine many evaluation committees have a difference in opinion. One of the primaries was actually much more general, with regards to how the commission tries to speed their processes up ***(Sub-state 1.1)***
[Pause]
Paul: I still think we should, I still think that we should re-consider the objectives of the project, because I feel as Ronnie pointed out the e-learning aspect as being one of the most important, especially in the situation that we are in today, where e- learning is going to be a very important part of well everybody's future. And um I think we should therefore place much more emphasis on that part of the project and for example something that I already mentioned in Madrid and still do not really understand, the necessity to um put such an emphasis on developing a web authoring tool because there are oodles of web authoring tools out there, we do not another one. And even if you make a particularly accessible web authoring tool, who is going to ensure that the millions of web authors out there will, will go out and just use that tool, because I mean there is a choice. We are [laughs] we are living in a free market society, everybody can use the, the tools that they want. So again I would urge as I did a couple of weeks ago in Madrid, that we either drop the web-authoring tool idea all together or at least put it on a back burner and really do something in order to um move forward and give more importance to the e – learning part of the project.
Kenneth: But, but surely, um we have all signed up to a project. ***(Sub-state 2.1)***
[Whispering between Lucy and Ronnie]
Kenneth: program where there are a number of main objectives, none of them objectives mention e –learning, they do mention web authoring. We have been awarded this contract on the basis of what we put in the project program and which we all had the opportunity to input, both before the project went in and during the negotiation phase which even then it was reasonably extensive. To now go back to the commission and say well actually we don't want to do web authoring tools although that was a fundamental objective of this program, but we do want to concentrate on e-learning which was not a fundamental aim of this um project when we are three months in. when in um 12, um 9 months time we are going to have a very stiff review which means in effect in about 7 or 7 ½ months time we have to deliver documents to the commission against which they are going to review us. I am not quite sure how we can actually, look at re-directing this whole project program. It is not quite how EU projects work.
[Pause]
Ronnie: That's true. ***(Sub-state 1.1)***
Ben: yeah I agree. ***(Sub-state 1.1)***
Morris: well, but still after the, ah, there has been the first review and the project must go down to 12 instead of 24 or 27 months. And um it was striking to see for us, that for partner 7 that, the, the program was not consistent. In fact we were asked to do uh, to perform a task that needed to be performed over a certain period of time, and so we were asked to perform it in a shorter period of time. So this is, this lack of consistency that really has raised our concern
Hazel: Sorry can I just say that that is not actually what the situation is. ***(Sub-state 2.1)***
Morris: yes. ***(Sub-state 1.2)***
Hazel: The project was not cut down from 27 months to 12 months.

Morris: uh-huh. ***(Sub-state 1.1)***
Hazel: it is going to be reviewed at month 12
[uh-huh being said in the background by some of the other team members] ***(Sub-state 1.1)***
Morris: ah right. ***(Sub-state 1.1)***
Hazel: that is a very different situation. That means that at month 12 we need to show we have made substantial sensible progress
Morris: uh-huh. ***(Sub-state 1.1)***
Hazel: as stated in the project, so that they then um approve for further funding
[Whispering in the background between Lucy and Ronnie]
Hazel: Not that we have to do the 27 months work in 12 months, we have to do sufficient work in the first 12 months
Jack: Right. ***(Sub-state 1.1)***
Hazel: then we get a continuation in the contract
Jack: yes. You see in the contract the technical annex is the same as the 27 month and what it says in the contract is ah this contract is for 12 months, and then you will be evaluated for the deliverables for um market for the first year, and not for the others ***(Sub-state 1.1)***
[Whispering in the background]
Ronnie: sorry, sorry
Jack: and I agree with Kenneth that uh we have, this project started in march or something like that and we have gone through all the preparation of the project and then the negotiation and we are now 3 months in the project. I am happy that problems are arising, um not problems but we are talking about problems and what actually the project is going on, but uh a lot of things, most of the things cannot be changed because we have a contract, a technical annex that was agreed by everyone so what we should do is to uh to talk about this and we cannot do main changes, we have to go with what we have in the best way we can do it. And that's the thing I think we have, we should talk now. How to do the best way what we should do. ***(Sub-state 1.1)***
Ronnie: I am sorry to interrupt you but how, we, we have a contract which is now if I understand correctly maybe I do not know. It is a one-year contract
Jack: Yes. ***(Sub-state 1.1)***Ronnie: it is not a 27-month contract
Jack: uh-huh. ***(Sub-state 1.1)***
Ronnie: so it is correct to understand that we will have an evaluation after, after the 12 months period.
[Whispering in the background]
Ronnie: but this evaluation is for, is the, let's, lets say the condition not to have our contract continued, but to have a new contract
Hazel: Yes. But it is in fact the work continued ***(Sub-states 1.1 and 2.1)***
Ronnie: the work continued
Hazel: Yes. ***(Sub-state 1.2)***
Ronnie: But if you look at what Mr A S very clearly started one of the very things we cannot understood is that in this contract, in theory, in theory if we are right, if we do not mistake, we have to do the whole work
Hazel: no, no. ***(Sub-state 2.1)***
Ronnie: the whole work regarding
Hazel: that is wrong. ***(Sub-state 2.1)***
Ronnie: No, that is, what is, what we [laughs] we did understand. ***(Sub-state 2.1)***
Kenneth: No, no. ***(Sub-state 2.1)***
(Sub-state 5.1)
Ronnie: that is we have all of the, the, the, the [pauses]
Lucy: amount
Ronnie: the amount of money allocated, is to be spent in, or all the energy, no the people ***(Sub-state 1.1)***
Jack: no, no. ***(Sub-state 2.1)***
Ronnie: all the people have to be working in a very short period of time, which is impossible,
Kenneth: no, no. ***(Sub-state 2.1)***
Jack: You are not being allocated less than half of the money of the total project, uh ***(Sub-state 2.1)***
Kenneth: and, um
Jack: I do not have, tomorrow I will, I can show that, what if you remember in the negotiation phase they asked for the CPFs contract forms and in there you stated what was the cost for the first year, second year and these three months. What they have done, is took the first year, what you said in the first year and that is what has been allocated.
[Whispering between Ronnie and Lucy]
Jack: and you say ok, you said this is for the first year, you will use this for this 12 year, uh12 month
Ronnie: no, no. What we want to say is that it is not clear ***(Sub-state 2.1)***
Jack: and if the contract is continued you will have the second year
Jonathan: yeah. ***(Sub-state 1.1)***
Jack: and the three months
Ronnie: My, my point, sorry to insist, my point is not this. My point is to concentrate, to concentrate what we ask for is to have, to expand without any increase of money, it is to expand our participation in the project That is what we ask for. I do not know if it is clear what I mean ***(Sub-state 2.1)***
Lucy: I do. ***(Sub-state 1.1)***
Jack: it is totally different from what I [laughs] ***(Sub-state 3.1)***
[Whispering in the background]
Ronnie: we would like simply more, more man months for the same amount of money, without changing the
[Laughter in the background]
Ronnie: the financial
Jack: well, that can be done outside of the contract, uh you can't just put your ***(Sub-state 1.1)***
Ronnie: because our, our invoices and whatever will be out of this period, you see and from a strict point of view, this should not be possible. So it should be official, that our time is expanded. Is this possible I do not know?
Lucy: Excuse me Jack, I can explain.
Jack: uh-huh. ***(Sub-state 1.1)***
Lucy: partner 7 needs one person to work on the contract, if say hires this person now, they cannot pay the person because the money which is given for them, is given only for 2 months at the end of the first year contract. So the question is that one, how shall they, how shall we do to extend the period of the work for partner 7 with the same amount of money of course. Do you understand?
Ben: I think the cost per month to one half of what is, but I
Lucy: it is a question of presentation. But I would like to say also for partner 5, the thing which is really important is to make e-learning accessible for blind people. We doubt that there shall be
[Whispering between Elsie and Michael]
Lucy: shall be so many blind people who will be able to be ah webmasters and ah [pause] developers. So when we are talking about user needs I am surprised that we do not speak about user needs about e learning, but just user needs about technology You see
[Can hear people saying yes in the background] ***(Sub-state 1.1)***
Hazel: the work I have been doing is considering user needs for e-learning for visually impaired students
Lucy: uh-huh. ***(Sub-state 1.1)***
[Lucy and Ronnie are whispering to each other]
Hazel: We have not presented that yet, but I will start to present that tomorrow
Lucy: that is very important. ***(Sub-state 1.1)***
Ronnie: That is good. ***(Sub-state 1.1)***
Hazel: yeah, that bit we can deal with easily [laughs]. The bit about the contract [pauses] is a bit complicated. Everyone Jack thinks about that problem ***(Sub-state 1.1)***
Jack: yeah. ***(Sub-state 1.1)***
[Whispering in the background]

Hazel: As someone who knows a lot of people who evaluate projects. Although I have never done it myself because I always am involved in projects, but one of my friends evaluates projects and I think one of the things that she is going to be critical at the review, at the end of the first year is the reviewers will take the objectives we set in, in for example in the project summary, and they will want to see we have made progress towards each of those [pause] objectives.
Ronnie: its true. ***(Sub-state 1.1)***
Hazel: So, I think we should consider it as Jack said before there will be certain deliverables which are due, at month 12 that we need to present
Jack: uh-huh. ***(Sub-state 1.1)***
Hazel: but also we have these I think it is four objectives, is that correct?, three, yes four objectives. What have we done on each of those objectives, and even though [pause] the objectives do not specifically list or don't mention e-learning, the fourth objective is development of an accessible portal, which can be browsed by means of speech, with contents stored in voice XML. And so that is our e-learning portal
[Whispering in the background]
Hazel: And I think that is where we can [pause[uh, take care if you like of the concern that is being voiced here, that one of the fundamental aims of the project is to make e-learning accessible. So we need to have made some progress towards that objective and show how we are going to continue if they give us the extension. So we not only need to have made some sensible progress towards those four objectives, but have a good
[Whispering in the background]
Hazel: a good clear plan of action and how we can achieve those objectives by the end of the project.
[Whispering in the background]
Ronnie: our problem exactly in line with what you were [pause] very clearly stating now is that we have to work for these, these deliverables. But, with our, with our uh participation, with our fault or without, probably with, the problem is that if we cannot pay we cannot work. So we need to have a possibility and maybe somebody can help us to solve these problems. We need somebody to work now and not only in the two months, which were uh, allocated to us. And in order to work, to do our work we need to know exactly, to very well what the uh other work packages, what is the development of other work packages, so we must proactively participate in the project development, in the evolution of the project. Doing so we can be useful to the project, otherwise I do not think that we are able to be useful. And you know our interest is being, bring those who represent together with the national organizations, being those who represent you, we loose our credibility, and this is a problem for us as you certainly understood. So we must have a better [pause] a better participation in the project activities. ***(Sub-state 1.1)***
Hazel: can I just clarify
Ronnie: yeah. ***(Sub-state 1.1)***
Hazel: is it that the problem is that you do not have many months allocated in the first year, your man months are all after the review? No that is not the problem. Ok. Then we still need to clarify what your problem is, coz I do not understand what it is. ***(Sub-state 3.1)***
Lucy: how many man months do you see for the project, for the first year contract?
Kenneth: it does not actually list man months here, but
Lucy: yes, ok. ***(Sub-state 1.1)***
Kenneth: but my belief, from what I am reading here is that partner 7 have got a um maximum amount of £110 000 euros, of which they should have already received 44 000 euros
Ronnie: Did we?
Morris: Yes we did. ***(Sub-state 1.1)***
Kenneth: yes 44 000 euros, I am not quite sure why ***(Sub-state 1.1)***
Lucy: it is not a question of money.
Ronnie: we are not satisfied with the
Lucy: it is not a question of money
Ronnie: We are satisfied with this, there is no problem with this ***(Sub-state 1.1)***
Lucy: Can partner 7 hire somebody now and pay him every month or not? Because when we look at the work packages, it seems that, that we cannot. It seems we have to wait two months before the end of the project
Ben: uh-huh. ***(Sub-state 1.1)***
Hazel: But how are you spend 44 000 euros in
Lucy: that is the question, we cannot. ***(Sub-state 2.1)***
Hazel: in two man months. Not in two man months.
Jack: I need to check with the other papers that I do not have here
[Whispering between Kenneth and Hazel. Also Hazel is looking at Kenneth's paper]
Jack: but just in a fast look at the work package, what it is clear that you have [pause] uh, many man months in the package 6 that is dissemination and exploration
Lucy: it is at the end?
Jack: No. ***(Sub-state 2.1)***
Kenneth: no. ***(Sub-state 1.2)***
Jack: it is the start of month 3.
Kenneth: it starts now and goes to the end of the project. You have one, one person in the partner 7 currently employed
Ronnie: we have started already.
Kenneth: on, on work package 6 from now through to the end of the project.
[Whispering between Lucy and Ronnie]
Kenneth: so you have got 20 months there
Jack: so, that, I, I mean that I think Thais the explanation. We have some people and you are right, at the end of the 12-month for the creation of the [pause]
Lucy: website
Jack: wesbite and a lot of people for the dissemination and standardization and exportation. So maybe the question now is that you feel that maybe this man month that are for this work package 6 would be better ah used in other work packages, so we know that you have that money you have the money for what you have that and you feel it is better in another work package, so what we can talk this ***(Sub-state 1.1)***
Ronnie: uh-huh. ***(Sub-state 1.1)***
Jack: is how, how to move them [pause] and I think that is the easisest way, and we can decide on what work package. I remember that you would like to
Ronnie: no because ***(Sub-state 2.1)***
Jack: in the work package 1
Lucy: this is for partner 5
Jack: For partner 5 ***(Sub-state 1.1)***
Lucy: it is not partner 7
Jack: Yeah, but partner 5 is ***(Sub-state 1.1)***
Lucy: partner 5 is
Jack: partner 5 is already
Lucy: is already distributed in work package one
Jack: in work package one ***(Sub-state 1.1)***
Lucy: yes. ***(Sub-state 1.1)***
Jack: Yes, but I mean that [pause] I understand that what you are saying is that you want to be in the user requirements ***(Sub-state 1.1)***
Hazel: uh-huh ***(Sub-state 1.1)***
[Whispering in the background]
Ronnie: we are not, no this is not a problem. What we need to know and what we would like to do is to start working actively for what is, foreseen what is provided for only in the last period, because we know exactly what is important now is not to work on dissemination of nothing, because there is very much to disseminate now. We have to work now on the preparation to study, study to the preparation of, of the accessible portal. ***(Sub-state 2.1)***
Kenneth: so you
Ronnie: so, to give
Kenneth: so to give the start date to work package 4

Ronnie: and to give our contributions to this and to do something useful, for, for really useful
[Whispering in the background]
Ronnie: and we will take all of the necessary measures to make the dissemination as well.
[Whispering in the background]
Hazel: in fact that is a very interesting point, because one of the points I raised at the Madrid meeting which still worries me greatly is um [pause] I agree that one of the important aims of the project is to demonstrate the accessibility of e-learning for visually impaired students. But if we are going to make that demonstration we need to have some e – learning to demonstrate
[Lucy nods her head] ***(Sub-state 1.1)***
Lucy: yes. ***(Sub-state 1.1)***
Hazel: and when we discuss this in Madrid we don't, we drew a blank on what it was we were going to demonstrate, what partners within the project are going to demonstrate the e- learning. So we can work on the user requirements and talking about making e – learning accessible, but what is going to be demonstrated within this project in terms of accessible e – learning?. The content yes thank you.
Ronnie: Yes. The content this is the important exercise that we have to do. ***(Sub-state 1.1)***
[Pause]
Kenneth: and there is no reason why work package 1 we cannot extend the investigation into e- learning or to bring forward work package 4 and start, either are possible. In some ways adding it into work package one makes more sense because remembering the 12 month review this will make sure we have a deliverable that will reflect the work that has been done in that deliverable and it is reviewed. Um there is a concern here um, that we do not have very much according to the workplan that will be delivered to be reviewed
Ronnie: laughs
Kenneth: by month 12
Ronnie: Exactly. ***(Sub-state 1.1)***
[Christopher walks out of the room at 2.55]
Kenneth: and yet that is the whole fundamentally what we are going to be reviewed on, so we need to actually we far clearer that we can represent all of the work we have done in the deliverables we put forward. *[Pause]*
[Hazel nods her head] ***(Sub-state 1.1)***
Jack: so, your proposal is to bring this hereforth from partner 7 to the work package 1 in that e-learning reqirements and
Kenneth: well, well one of my concerns is that at the moment the deliverable out of work package 1 [pause] is the manual for accessible design, a specifications dossier and a project presentation. It doesn't even actually have a user requirements document as such.
[Lucy is nodding her head] ***(Sub-state 1.1)***
Kenneth: and I feel that there is a potential here that we need to, need to modify that to a degree to actually more accurately reflect um the, the tasks we carry out in work package 1 to make sure that we are really reflecting that work, and being very clear to the commission what it is we achieved in that first year. On the basis that Hazel was saying earlier, it is that progress that is going to give them the confidence to say, yes it is worth funding this for another 15 months to get to somewhere we can see where you are aiming for. If we are not clear where we are aiming for in those documents, nor will they be and have that confidence
Ronnie: ok. ***(Sub-state 1.1)***
[Pause]
[Whispering in the background]
[Christopher returns back in the room]
Paul: I would like to come back to the e-learning content, couldn't we simply try and use something that um that has, or is already available. I am thinking for example, how good or how close the context would be between the different organizations, and the London Society for the Blind have come up with a program for the European Driving License
Morris: what you say partner 7 is working on this, what European programs would be made available, and what could um serve as an um illustration for this project. It is not really the concern, partner 7 are meant to work with in fact, so it is not what concerns us
Paul: that is not what exactly concerns you, but I understand that. Um I do see also the very important concern that we have the e-learning content ***(Sub-state 1.1)***
Lucy: uh-huh. ***(Sub-state 1.1)***
Hazel: and if we are having a review at month 12 of the 27 month project, where just slightly under halfway through, that by month 12 we ought to have something to demonstrate in terms of e-learning content already or have some very concrete plans
Ronnie: uh-huh. ***(Sub-state 1.1)***
Hazel: to demonstrate very soon after that
Morris: in fact you have just summarized what we wanted to express, but not being able to convey the message you see It is being clear that PARTNER 7 was in charge of this, I mean to identify ah um an e-learning program that would serve as a demonstrator, or as a demonstration. Sorry my English is not good, um but our concern is that um wp4 starts around month 8 and we felt that we needed to start the investigation to, to get a clear orientation much earlier. You see that is exactly what we wanted to say. ***(Sub-state 1.1)***
[Pause]
Hazel: That's fine. But what worries me is why should the London Society for the Blind [pause] give us access to their e – learning system when they are not in the project and when actually that is fully accessible because I know blind students who are doing it. ***(Sub-state 1.1)***
Morris: mhmm ***(Sub-state 1.1)***
Hazel: yes. ***(Sub-state 1.1)***
Morris: but I was telling you that we already investigating, I mean the London society was one of the societies that came to mind, because I was aware of one of their programs. But there was about two months ago a bit conference in Germany on e-learning that was a mainstream conference and we have started looking at making contact with some of the people to see what extent their programs could be adapted. But again PARTNER 7 is confident that we have the right profile to do this, but we needed to have the extra resources to work, to work upstream instead of waiting till month 8. So there is no plan, to, to the London Society for the Blind, we are still investigating what partners could um help us in carrying out the task.
Ronnie: Royal Society was an example. For example we had also a German association who has um run centres for distance learning. What we need is simply to try and find a way to [pause] to work officially now to have our, our costs in the project just from the beginning for this kind of work. Is it possible? Is it not possible? I think it should be possible.
[Pause]
Hazel: As far as I can see, it is a question of transferring man months from work package 6 to work package 4 and or work package 1. Then I think that's, as long as everyone from the consortium is in agreement I do not see that as being a problem.
Ronnie: Ok. ***(Sub-state 1.1)***
Hazel: Because I mean
Ronnie: we do not ask for an increase. It must be an official decision I mean, it cannot be done simply
Jack: ok, yeah. ***(Sub-state 1.1)***
Ronnie: you understand what I mean?
Jack: uh-huh. ***(Sub-state 1.1)***
Ronnie: it is not a problem or practicing it, it is a problem of officially deciding.
[Pause]
[Whispering i the background]
Jack: do we all agree that?
[Agreement in the background] ***(Sub-state 1.1)***
Jack: so that we produce a document that will say we have decided to do that and will be signed by everyone and sent, ok
[Agreement in the background] ***(Sub-state 1.1)***
Ronnie: ok. Thank you very much ***(Sub-state 1.1)***
[Whispering in the background]

Meeting minutes

Desmond: um, I have another point,[pause], I received the meeting minutes, just a 29th of November I think. And um I read it many times, did not find something's cast in broad, um we could have synchronized some of the information, so for this meeting it should be a little bit earlier

[Agreement] ***(Sub-state 1.1)***
Paul: yeah you are right. ***(Sub-state 1.1)***
Jack: now you say that I will appreciate that if you detect anything in any of the documentation, you can, we can change the minutes
Desmond: yes. ***(Sub-state 1.1)***
Jack: because something will be missing
Desmond: uh huh. ***(Sub-state 1.1)***
Jack: So we have to produce something form all the areas, all the departments
Desmond: for example all of the presentations, the partner 6's presentation was not in the minutes. I could not find it
Jack: what presentation?
Desmond: um the presentation that I just made.
Jack: yeah, um that was decided that [could not transcribe the rest of what was said] ***(Sub-state 1.1)***
Desmond: ah ok. ***(Sub-state 1.1)***
Jack: ok. ***(Sub-state 1.1)***
Jack: these sorts of things, that was right, this was wrong
Desmond: we need it a little bit earlier
Jack: yeah, yeah, yeah. ***(Sub-state 1.1)***
Desmond: ok. ***(Sub-state 1.1)***
Jack: well things have been slow this two months, I will explain tomorrow
[Laughter in the background]
Jack: how things are, but um I appreciate your criticism about that
Desmond: thank you
[Pause]
[Whispering in the background]
Desmond: would it be possible to make it um one week?
Morris: Sorry
Desmond: would it be possible
[Laughter in the background]
Hazel: that is Christmas Eve ***(Sub-state 2.1)***
[Laughter again]
Desmond: sorry I forgot ***(Sub-state 1.2)***
[Laughter again]
[Tape finished]
[New tape]
[Chatter and laughter]

Dining plans

Hazel: the Spanish partners, this is like afternoon tea probably
[Laughter]
Ronnie: for us as well. ***(Sub-state 1.1)***
Hazel: but in the even more for the Spanish people. It is going to be in um a restaurant called the peasant. ***(Sub-state 1.1)***
[Laughter]
Hazel: this is a joke, because many public houses in England are called the 'pheasant' like the bird
[People say ahh in the background] ***(Sub-state 1.1)***
Hazel: but this is the peasant. The labourer of the workers. So this is very appropriate for us as we have to labour very hard
[Laughter]
Ronnie: the rural worker
Hazel: the underpaid, overworked
Ronnie: the peasant (in an accent)
Hazel: peasant (copying accent). It is 240 St Johns street. London EC1 ***(Sub-state 1.1)***
[background chatter]
Hazel: this is about 10 mins walk from angel. Sajal would that be right? About 10 minutes walk from the tube station called the Angel. Now um who is, is staying at Drury's inn hotel? Ok where are you all going to be at 6.30? ok quarter to seven.
[Names are called out - Bedford Hotel, Bedford place, Russell square]
Hazel: How about I come to Druries inn at 6.30
Desmond: yes. ***(Sub-state 1.1)***
Hazel: and pick you up, and then we will be at Angel tube at 6.45. so if people want to come to angel tube then we can all walk together. I mean it is very easy, I have drawn a little map here, but I will be at Angel tube. There is only one exit, so Desmond and I will be at the exit of Angel tube station at a quarter to seven and then we can walk to the restaurant. That is also very convenient because we will walk past [partner 8's venue], so I can show you where to go tomorrow.
[Ok] ***(Sub-state 1.1)***
Hazel: ok. Thank you very much ***(Sub-state 1.1)***
[Chattering in the background and everyone packing up to leave]

Venue: Partner 8 building, London

Attendees: Hazel, Paul, Fabian, Christopher, Annie, Jonathan, Ben, Charles, Charlotte, Michael, Michael's' translator, Lucy, Thomas, Morris, Desmond, Elsie, Jack, Kenneth and Ronnie

Reminder of roles in the project

Jack: I did tell you in Madrid, but it is always good to say it again. I am administrative co-ordinatior and Jonathan is the scientific and technical co-ordinator.

Project logo

Jack: First point here, this logo for the project we have a designer in our team
[Desmond nods his head] ***(Sub-state 1.1)***
[Laughter]
Fabian: [laughs] It is not true. ***(Sub-state 2.2)***
Jack: Please correct me, but this Braille for the project
Hazel: You cannot see it.
Lucy: You cannot see it. ***(Sub-state 1.1)***
Jack: Do you know Braille? No?
Morris: it should have three dots in a column ***(Sub-state 1.1)***
Charlotte: Yes. That is right. ***(Sub-state 1.1)***
Morris: and one
Charlotte: Yes it is right. ***(Sub-state 1.1)***
Morris: I can write it for you
Charlotte: yes, I can read Braille. ***(Sub-state 1.1)***
Morris: Writes the project name in his Braille machine
Jack: ah, yes. ***(Sub-state 1.1)***
Morris: 1st letter is 4 dots
Jack: yes. ***(Sub-state 1.1)***
Morris: 2nd letter is 2 dots
Jack: 3rd letter is 2 dots ***(Sub-state 1.1)***
Morris: 4th letter is 3 dots, 5th letter is 3 dots, 6th letter is 1 dot.
Jack: yes. ***(Sub-state 1.1)***

FTP site

Jack: The document list this is the documents list we already sent a month ago
[Conversation between Ronnie and Lucy].
Jack: I am sorry to say this is still is the document list. I hope in the next month a lot of documents are sent by so, so we have life in our project. So in our project at the moment we have 14, from the management we already have a lot more documents included in this list and the ftp site. The presentations, amendments, CPS forms, so anything you will think is interesting.
[Desmond nods his head] ***(Sub-state 1.1)***
Jack: Send anything to me and I will include it in the list and on the FTP site. I will send an email to everyone to say that there is a new document and where it is. Well the FTP site, I sent you an address of the FTP site. I hope that it worked for everyone. I hoped that you have tried to reach it or even to try and get a document from there
[Charlotte nods her head] ***(Sub-state 1.1)***
[Ben sits with one hand on his face]
Jack: You can do it from an FTP program, Netscape or Internet Explorer. So if you are in a browser you use ftp://ftp.xxx.es. If you are using FTP you just put the address ftp.xxx.es. Then you will be asked to give a username project. The password is the number for the project xxxxxxxxxx. As with any password please do not pass the password onto anyone outside the project. As you are in the program you can mark the file you want, copy and paste into your own disk.
[Desmond tries to talk]
Jack: With FTP site it is easy, you just mark and sent it.
Jack: Please at least try to get into the FTP site and try to get one file so you are familiar with this. We can always use this instead of sending big files to you. I have lots of problems sending big files because for example partner 3 rejects big files. They have this limit I understand that, and I have to Zip it. partner 3 will have FTP
Charlotte: yes. ***(Sub-state 1.1)***
Ben: Jack, your remark about the FTP site I saw that you numbered the documents
Jack: Yes. ***(Sub-state 1.1)***
Ben: I do not think this is very practical. The name of the document itself with a number at the end, that is a way of numbering the document. ***(Sub-state 2.1)***
Jack: Ah, instead of the name it starts
Ben: I think it will be better than to make just a couple of sub directories, rather logical with different workpackages and so on, rather than numbering in one directory
Jack: so we can split the FTP site into say coordination, WP7, WP1, AOB
[Annie and Christopher say something]
Jack: and inside we can still have the name divided by the workpackage. Okay. ***(Sub-state 1.1)***
Ben: it seems to be 100 documents in one place, and it can become difficult to find the document
Jack: all the documents in one place
Ben: if we have that
Jack: O One point about the ftp site, I will include in the FTP site the documents in the original kind of file. If it is picti I will put it picti, .doc I will put it. I do not know if you would prefer everything to be in pdf mode or also in pdf or both formats. We put the original because we are in the same project. So we can use all these documents. It does not make sense to make them pdf protected or anything.
[Charlotte says yes when Jack is talking about the format and she nods her head] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: you must not have just PDf it is not accessible. ***(Sub-state 2.1)***
[Annie and Lucy nod their heads] ***(Sub-states 1.2 x 2 as 2 people provide evidence)***
[Ben shrugs]
Jack: that is what I am saying. So if someone wants also the pdf because they use it, it is easy for them, they can use that. Yes [looking at Lucy]
Lucy: I cannot read pdf. ***(Sub-state 1.1)***
Jack: Sorry
Lucy: I cannot read pdf. ***(Sub-state 1.1)***
Jack: well then we put
Ronnie: We have the same problem. ***(Sub-state 1.1)***
Elsie: No we can read it. ***(Sub-state 2.2)***
[Discussions taking place, cannot hear them though]
Jack: Then that is the decision, we ask then if we want pdf we will have it. Please let me know I think it was partners 3 or 8 or someone with at least of the files. I guess here it was a ppt presentation in one version, a newer version is necessary
[Desmond nods his head whilst Jack is talking] ***(Sub-state 1.1)***

Jack: As I said in Madrid, the project presentation or any documentation will be on the web is accessible.
Jonathan: Now I want to remind the other partners in the project that presentations must be placed on the ftp site.
[Annie and Christopher nod their heads] ***(Sub-state 1.1 x 2 as 2 people provides evidence)***
Jonathan: The objective is to share.

Communication amongst the team

[This comment was made as Jack was leaving the meeting]
Jack: I have to leave now. But I think many of the issues we have discussed today here are to do with communication. I think we have to send emails, maybe not general to everybody, I need something like that, but asking oh Hazel I need this, do you have this kind of documentation of to Ronnie or whoever, or ever can have the documentation or to everyone, I remind I ask this to you can you send me that I need it, more life because if not this is just, things are waiting there and days are going on.
Annie: But, but
Jack: Communication is always important
Annie: That is true, but there is no point in asking for documentation if no-one gives it. ***(Sub-state 1.1)***
Jack: No. ***(Sub-state 1.1)***
Annie: so we must
Jack: that's why
Annie: communicate ourselves
Jack: I said to send to us and to explain things and
Annie: yes. ***(Sub-state 1.1)***
Jack: to ask for anything and if you receive an email and you do not understand what is going on, what do you want or more communication
[Annie and Christopher say something. Cannot hear what is said]

Project website address

Jack: We are in the process of booking, I do not know if that is the word, the address for projectname.org is on sale
Hazel: oh
Jack: someone has it. I guess that is because visual basic, visual plus and this kind of stuff and visual.net is a company in Canada about connections, so it is used. Visual.com is another company, so one of your suggestions was
Christopher: for the project?
[Kenneth nods his head] ***(Sub-state 1.1)***
Jack: now our bet is the project nameproject.org
[Can hear uh-huh in the background to indicate agreement] ***(Sub-state 1.1)***
Jack: that is what we are now getting and in case we are also project.info. That is a new extension, info, because .eu is not on the market. It is so new you cannot take it right now.

Project webpage

Jack: As we said in Madrid we are working to have more interactive and more attractive page. Also a more useful for us page, not what they want. Now the European Commission is someone we can show to everyone and the public can say the European commission of Spain project, oh it is very nice and they understand. For us it should also be useful for work. We will put the ftp connection, our mailing list and other stuff that is interesting for us. As we said it, it should be a live webpage.

Dissemination activities

Jack: Also another work, which has been done. Maybe it is in Jonathan Manuel's presentation in ten minutes. We have been doing some work, some dissemination, the kick of meeting, during the kick of meeting, as you remember we sent the press um note or [pause]
Lucy: release
Hazel: release ***(Sub-state 1.1)***
Fabian: Release ***(Sub-state 1.1)***
Jack: release to the Spanish ministry. I do not know if you were surprised, but still today it is appearing in the second newspaper in Spain. There is news about the project. It was a success and radio, we have press [pause] ***(Sub-state 1.1)***
[Lucy and Charlotte nodding their heads. Charlotte's head nods get faster] ***(Sub-state 1.1 x 2 as 2 people provide evidences)***
Elsie: Dossier
Jack: it is in paper
Elsie: Ok. ***(Sub-state 1.1)***
Jack: because you can take a look. All Spanish newspapers. We also went to a conference just a week after the kick of meeting. The conference was about disability and new technologies
[Lucy is saying something to Rudolfo and Morris)
Jack: for information and communication. So we have [pause]
Fabian: friends
[Hazel laughs]
Jack: we have a talk with speech in this conference, talking about the project and other projects we have for disabilities in our company
[In the background can still hear Lucy whispering]
Jack: This was also a success. We were in newspapers and on radios. More locally this was in Calonia.
Lucy: What does it mean aspi?
Jack: This is the association for paragerpelic and other disabilities. So it was more focussed on parepheblics, but also for blind people and kids with down syndro
[Hazel and Charlotte correct Jack by saying down syndome] ***(Sub-state 2.1 x 2 people provides evidences)***
Jack: syndome. It was really interesting, it was different points of view. This I would like, Spain is going to be [pause] presidency for the European union next 6 months. So we know from the Spanish Ministry for Science and Technology that this 6th and 7th February there will be in Madrid a conference, European conference on accessibility ***(Sub-state 1.2)***
[Lucy is talking to Ronnie. Cannot hear what is being said though]
Jack: for information society. But I would like to know if you know about this conference and how we can reach them maybe to participate in this conference. We are going over, moving our contracts in the Ministry in this conference. But if you have any news about something that can help in the project
Ronnie: I am in the, I am already invited
Jack: Ok. [laughs] we already have someone. Ok, so please if you can send me more information about this it will be very helpful ***(Sub-state 1.1)***
Ronnie: okay. ***(Sub-state 1.1)***
Morris: There will be another major conference
Jack: sorry
Morris: There will be another major conference on disability in March I think
Jack: in March?
Ronnie: 20 – 23 of March.
Morris: it is more social aspects
Ronnie: it is European conference on people with disability action. Organized by the Spanish president
[People are making notes]
[People are taking to one another]
Ronnie: And there will be about 4 or five hundred people I think invited, mainly from Spain

Jack: 4 or 5 hundred *(Sub-state 1.1)*
Ronnie: 4 or 5 hundred people at least. It is a very big conference *(Sub-state 1.1)*
Jack: so I think this kind of conference are very important for the project, we can [pause] go there and learn and also disseminate about what we are doing. For March it will be month 6 of the project, so we should present
[A brief conversation between Fabian and Christopher. Annie then joins in as well]

Project mailing list address

Desmond: Paul is not in the mailing list please include him.
Jack: Mailing list is the next point, so I will ask
Jack: Ok the mailing list. This is at present the mailing list, another web page. The address is project@xxxx.xom. Okay if you send an email to this address it will automatically be sent to this entire people. This and the next step I will show you. Please check that the names you want to be part of the project are here. Is it partner 7 or 5?
Lucy: No, no, it is ok. G is partner 5. That is why you have partner 5 *(Sub-state 1.1)*
Jack: yeah. I noticed that when you sent it [laughs]. Ok, partner 3 they have set their own mailing list, so now I think it is redundant and I am sending to the mailing list and to the address. You agree I will delete this and only send to the project mailing list. *(Sub-state 1.1)*
Charlotte: Yes. I think that is probably the easiest as we can all access it. *(Sub-state 1.1)*
Jack: Otherwise you will have twice the e-mails.
Charlotte: Yes. *(Sub-state 1.1)*
Jack: Ok Paul is not here. Do you know his email address? *(Sub-state 1.1)*
Desmond: Yes. you can write it down. It is very easy. It is *(Sub-state 1.1)*
Jack: Ah, I can do it. *(Sub-state 1.1)*
[Laughter]
Jack: is it this one?
Ben: on the desktop at the bottom, there is the dng set-up.
Jack: This one?
Ben: Yes, ok. Press it and then yes. *(Sub-state 1.1)*
Jack: This is not the epp, ok this is the second page. Please make sure all the names are on there
Hazel: We need to add one person. Sajal what is your email address? *(Sub-state 2.1)*
Sajal: ax141@soi.city.ac.uk *(Sub-state 1.1)*
[Hazel repeats this address for Jack]
Desmond: Ok Paul's mail. x-x-x-x at xxxxxx.de *(Sub-state 1.1)*
Hazel: Very sophisticated
Jack: okay. *(Sub-state 1.1)*
[Laughter]
Jack: So everyone agrees with this mailing list. It is not a problem, you can send me I need this other people or just like it is working here anymore, please delete.

Consortium agreement

Jack: Ok, so more things we have been doing in the co-ordination part of the project. Remember we have to send, we have an agreement, consortium agreement, before month 6 as was decided in Madrid in the kick off meeting, we have to work on the consortium agreement. From partner 9, they send us what is a unified consortium agreement. It is a group of universities, which has created a unified agreement that this generally accepted by the European community, so now we have this consortium agreement. It is very general, we are studying it, not us but the legal department and we what we have to do is input the things that apply to the project. So, this agreement is one of the documents which will be put on the ftp site and I ask you to please distribute the agreement to the legal department or at least study it. Right now it is nothing about the project. It is a general consortium agreement, so we have to study it and we will send a proposal which will have details about the project, you can start taking a look through it, it will be the agreement to which we will all work. Everyone should be to agree to this. This is the information about this unified consortium agreement can be found on the Internet.

Short presentation by each of the partners on what work they have done in the last three months

Jack: So in order to know now what is going to be included we will have a short description of the work, 10 minutes each organization, so that you can just explain what has been done in the last three months and we will start with Hazel. We are going to change the order.

Partner 8 on work package 1

Hazel: Ok, for me it was a rather a difficult three month period because without having more detail this afternoon, but then I will be able to produce another version of that either tomorrow or Thursday. So, we have one document, which talks about user requirements. I hope it will now make more sense to people now that they have seen the demonstration yesterday at partner 3, because it talks about things like what we saw yesterday. That is one document which I have been producing, which I am sure will become part of our deliverable D1.1 and D1.2 actually when we get there. Then I have been actually working on another document with assistance from Mary, which although it is not exactly called for in work package 1 I felt that it was going to be very useful and indeed it has already been very useful to me. That is a framework of e-learning. So, where are my notes on this one. Um, we have been looking at the different technologies that people use in e-learning, the different authoring tools that people use in producing e-learning materials, which turn out to be more complicated than I originally had realized. Also, setting a pedagogic and psychological framework for thinking about e-learning, because I think it is going to be very important for the user group partners when we get to the evaluation of the e-learning portal later on in the project. So Mary and I will finish this preliminary version of that in the first week of January and we will circulate that to partners by mid January. Then the third document, aspect I have been working on is different kinds of authoring tools, which are used, by mainstream authors at the moment. I have found an interesting survey that was conducted only this year of 1600 people producing e-learning material. 85% of those people produced their e-learning material in word.
[Desmond nods] *(Sub-state 1.1)*
Hazel: That horrified me that for the most commonly used authoring material for e-learning is word. Now as you will see in the framework document we have produced there are big problems for that. Because one of the key principles of e-learning material is that it must be highly interactive.
[Desmond nods and says huh in agreement] *(Sub-state 1.1 x 2 evidence, 1 spoken and non verbal)*
[Kenneth and Elsie nod as well] *(Sub-state 1.1 x 2 evidences from 2 people)*
Hazel: it is not just a page of content of the web. If it is going to be e-learning it needs to engage the user. So, you cannot make interactive content in word, so I do not know quite what this 85% of people are using. 71% of people said that they use generic web authoring tools, i.e. something like dreamweaver or frontpage – a kind of tool to use for authoring any kind of web material. But interestingly, Dreamweaver has special extensions for producing e-learning material, which we are beginning to look at. Whereas frontpage apparently, I am yet to validate this, but the critics of FrontPage argue that it does not have e-learning support.
[Desmond nods his head] *(Sub-state 1.1)*
Hazel: So we are going to start looking at this in much more detail now. Most intertesingly and what I did not really realized was that 52% of authors producing e-learning material said that they used specific e-learning authoring packages. So these are packages like Macromedia, authorware which are actually more specific than general web authoring tools. They are tailored more specifically towards the e-learning market although they produce one of the things that produce is web pages. Again, nearly half, no, no, not quite, 38% of people said they use the authoring tools provided in the learning management systems and the two main learning management systems that people talk about are Blackboard and Webct. Blackboard have actually produced a tutorial which I am yet to get hold of, but I hope to get hold of very soon on how to use Blackboard with screenreaders. They are actually directly addressing the accessibility issue of their e-learning management system. So I think we should have a look at that.
[Kenneth nods his head] *(Sub-state 1.1*
Ronnie: I think there is some advantage

Hazel: yes. ***(Sub-state 1.1)***
Ronnie: not only for us, not ourselves but [pause] I guess we have to pay for it. We can do whatever it is. We just have to know exactly where we have to go.
[Christopher and Annie say something to each other. Cannot hear what is said]
Ben: if we create some tutorials, very easy ones, about Internet technologies. There is a website w3schools.com or org, I am not sure, where you can learn html, or you can learn voice xml and all kinds of Java scripts.
[Lucy says something to Ronnie. I cannot hear what was said]
Hazel: Well I mean
Ben: I do not know if you can people that are interested
Hazel: yep. ***(Sub-state 1.1)***
Ben: in learning that
Hazel: yes. Can each user organization undertake to find five blind computer users who would try out and ***(Sub-state 1.1)***
[Annie are Christopher talk to each other. Cannot hear what they are saying]
Lucy: if you can find it, it is very easy, but I do think I shall be able to find people who are interested in learning how to use xml
Hazel: no, no, no. ***(Sub-state 2.1)***
Lucy: we can try and find people who are interested in learning, I do not know physics, mathematics or science
Ben: that does not matter. ***(Sub-state 1.1)***
Lucy: not computers
Ben: uh-huh. ***(Sub-state 1.1)***
[Jonathan, Fabian and Annie nod their heads] ***(Sub-state 1.1 x 3 people provides evidences)***
Lucy: because it is a double handicap
Ben: Yes. I mean ***(Sub-state 1.1)***
Morris: Sorry, to interfere, and to be a bit fussy, but this in fact, wp4, we have looking round for e-learning websites and this is one of the major difficulties we are faced with, trying to find the right content.
[Desmond nods] ***(Sub-state 1.1)***
[Lucy is sitting with her arms folded]
Morris: [pause] over 50 % of the websites we visited offer an ecological and computer oriented content you see. And, I feel that the problem that we have, but maybe I will come back to this later is to find something that is general enough, mainstream enough
[Desmond talks to Hazel. Cannot hear what was said]
Morris: it is all about accessibility. But for the purpose of the demonstration, to find you know panels of blind users who will try the system, who also needs something that fills the gap. One thing that has come to mind is that, for example, we have many blind people who say well I am German, I want to learn French, if you look around all the literature it is very difficult to find something that helps them combine the script and the voice. You have maybe one possibility because we are still investigating this, at least for the demonstration purpose.
Hazel: That is a very interesting possibility. ***(Sub-state 1.1)***
[Christopher and Annie talk. Cannot hear what they are saying to each other]
Hazel: Did you find any online foreign language learning?
Morris: There is one
Hazel: yes. ***(Sub-state 1.1)***
Morris: but you see, see if I wanted to learn Italian you see, I just have nothing
Hazel: yes, yes. ***(Sub-state 1.1)***
Morris: you can have these taped things, but I do not know how things are spelt
Hazel: yes. ***(Sub-state 1.1)***
Morris: how something's are
Hazel: pronounced
Morris: yeah, so it can be a possibility, the two aspects, general and mainstream, because it is the best way to test the accessibility and the viability of the system you can use to help you. But on the other hand, at least for the administration purpose, if you are interesting in trying the system we need to provide something that is missing in life ***(Sub-state 1.1)***
Hazel: I think that is a very good thing that we can do. Of doing a survey, or looking at surveys that exist or asking visually impaired people, are you met any educational needs that you may have. Not specifically talking about things on the web, but what areas ***(Sub-state 1.1)***
Ben: exactly. ***(Sub-state 1.1)***
Hazel: That is something that people know. I would like to learn Italian and I cannot, because
Ben: content of the e-learning website
Hazel: yes, so we breakdown from that. [Not finished as went to order a taxi for Desmond. This was not continued again] ***(Sub-state 1.1)***

Partner 2 on work package 2

Annie: Apart from that we have been working- on dissemination and people seem to be very interested in the project. The last thing we have done is visit a conference on web accessibility in the 21st century. It was especially for South America and Spain. People were very interested in the project.
Jack: How was your participation in the congress? You had a presentation or
Annie: we put a presentation, in a months period in November we were making questions and answered them. It was really good. ***(Sub-state 1.1)***
[Morris says something to Lucy. Cannot hear what is said]
[Pause]
Kenneth: can I just before we go on, I think what we need to be a lot clearer here is that what is the information you want for work package 2
Annie: Sure. ***(Sub-state 1.1)***
Kenneth: it is not clear to me just reading what work package 2 is about, as to what is the linkage to work package 1 was.
Annie: Yeah. I thought in Madrid that it was clear. Workpacakge 2 is integrating with the plug in and different screen readers. We agree that we could have some information about the different screenreaders that are currently working and how ***(Sub-states 1.1 and 5.1)***
Hazel: That has already been provided to you by Desmond a couple of weeks ago. ***(Sub-state 2.1)***
Desmond: 21st November
Hazel: 21st November ***(Sub-state 1.1)***
[Annie and Christopher speak to each other in their own language. Cannot hear what]
Annie: Yes. What Christopher is saying is telling me is that it was not really what we expected. What we really need to know is how these screenreaders work. We do not want our tool to be something that is so dissimilar to screenreaders. We want it to work together. We want to know how screenreaders work. ***(Sub-state 1.1)***
Hazel: What do you mean how screenreaders work?
Annie: it is more not in terms of the user, but technically I guess.
[Annie says something in Spanish to Christopher]
Desmond: You, you have to contact the
Annie: I guess a deeper analysis of the screenreaders
Desmond: you have to
Hazel: You cannot have that from user requirements package. None of the work here is about [pause] analyzing screenreaders in a technical way. It is about analyzing screenreaders from a users point of view. ***(Sub-state 2.1)***
Ronnie: You will never understand how a screenreader works if you do not know exactly the technical specification of the bloody, bloody thing ***(Sub-state 2.1)***
[Laughter when Ronnie says bloody]
Ronnie: I think it is essential that a perfect technical knowledge comes before any consideration of the user requirements. Otherwise
Hazel: I am sorry I disagree entirely with that. [laughs] ***(Sub-state 2.1)***
[Desmond says yes.] ***(Sub-state 1.2)***
Hazel: I thought we were designing a new system, a new system
Ronnie: No, no, I am sorry ***(Sub-state 2.1)***

Hazel: called the project system
[Kenneth agrees] ***(Sub-state 1.1)***
Ronnie: Maybe I did not express myself clearly. If they have to work on, on screenreaders and they wanted to have information about screenreaders. They are technicians, they must [emphasis on the word must] have perfect knowledge of the different technical screenreaders. Otherwise they cannot write.
Hazel: Well that is not what was asked for. ***(Sub-state 2.1)***
[Kenneth agrees] ***(Sub-state 1.2)***
Hazel: We were asked to do requirements and that is what we are trying to work on.
[Kenneth agrees] ***(Sub-state 1.1)***
Hazel: I mean if you want technical specification, then I have got the manual for JAWs, and I am sure partner 3 actually
Ronnie: That is what I wanted to say it is not our business
[Kenneth says huh, huh in agreement with Ronnie] ***(Sub-state 1.1)***
Hazel: Okay. ***(Sub-state 1.1)***
Kenneth: there is nothing to stop them contacting
Ronnie: yes. ***(Sub-state 1.1)***
Annie: yes. ***(Sub-state 1.1)***
Kenneth: Jaws or whoever to get that information
Desmond: it is very scientific
Kenneth: and all those
Desmond: I have that technical information for you
[Kenneth says huh.] ***(Sub-state 1.1)***
Annie: About the manual we have asked for it a few times but we have not received it. Plus it is only the technical part we did not know
Hazel: I have got the manual sitting in my office if you asked for it. I could have e-mailed it [laughs] ***(Sub-state 2.1)***
Ben: I do not think we are speaking about manuals ***(Sub-state 2.1)***
Hazel: Right. ***(Sub-state 1.2)***
Ben: A manual is a way of telling the user, how the damn thing works
[Hazel laughs]
[Jonathan agrees] ***(Sub-state 1.1)***
Ben: it does not tell the technician how it technically works
Hazel: but is that information
[Annie and Christopher nod their heads] ***(Sub-state 1.1 x 2 peoples provides evidences)***
Ben: information from the screen, on the level of an operating system it operates. So how you can interact with it and so on.
Ronnie: Yes, but when we were studying this for our technical unit, we have simply asked those who are producing, who are producing the tool to give us this information. It is simple. ***(Sub-state 1.1)***
[Ben nods his head] ***(Sub-state 1.1)***
[Annie is twirling her fingers around when Ronnie is talking]
Ronnie: Yes it is absolutely simple. You know only what you have to ask for. ***(Sub-state 1.1)***
Desmond: I cannot believe that you do not know for example the difference between text and links for an output for a voice output. But you do not know how to program this and this is just a requirement. And the technical knowledge is by you. It is your thing, and of course you could ask
Annie: yes. ***(Sub-state 1.1)***
Desmond: us to provide such software, to give you the sourcecode of these things or something like that. But that cannot be our job.
Annie: Yes. We are going to do the technical job. But we do not know what to do and so we need to know with our technical knowledge what we are going to do. ***(Sub-state 5.1)***
Desmond: Yes. I ***(Sub-state 1.1)***
Annie: what this tool is going to do. How people can um [pause] get something more from the interaction between the screenreader and the GUI. What it has to do when it is interacting with the screereader and the tool, because we do not know what we have to do.
[Kenneth says huh.] ***(Sub-state 1.1)***
Annie: So we will apply this to our technical knowledge with the tool. But we need to know what it is going to be. So
Desmond: yes. ***(Sub-state 1.1)***
Annie: we want it to be useful and usable with a screenreader, both at the same time
[Kenneth says huh.] ***(Sub-state 1.1)***
Annie: and we do not know how how they want it to work
[Ronnie is saying something to Elsie. Cannot hear what it is]
Annie: that kind of information
Ben: I do not think anyone knows. ***(Sub-state 2.1)***
[Annie and Christopher nod their heads] ***(Sub-state 1.2 x 2 people provides evidences)***
[Laughter]
Ben: I think we are going to go into more detail tomorrow morning with the technical discussion.
Kenneth: there is also a fundamental issue here that the project has made the assumption that the plug in does have a value to the user over and above the screenreader.
[Ben and Jonathan nod their heads] ***(Sub-state 1.1 x 2 people provides evidences)***
Kenneth: Actually that has not been researched. The users have not told us that this plug in does have given some advantage. We need to find out that from whatever ways whether that is the case, before we make these assumptions.
[Hazel says yes.] ***(Sub-state 1.1)***
[Desmond and Jack nod their heads] ***(Sub-state 1.1 x 2 people provides evidences)***
Ben: We have to ask the users what are the things that are now lacking
[Kenneth says huh.] ***(Sub-state 1.1)***
Ben: in your
[Hazel says yes.] ***(Sub-state 1.1)***
Ben: in your screenreader
Hazel: and one of the things
Jack: I think it is important. ***(Sub-state 1.1)***
Desmond: I think so. ***(Sub-state 1.1)***
Hazel: I think one of the things we need to have before we can continue with task 1.1 is a demonstration of what the project can do. I cannot plan an investigation of the user requirements
[Ben says yeah.] ***(Sub-state 1.1)***
[Morris talks with Lucy and Thomas]
Hazel: or for a tool to do this. I need you to tell me what the tool can do for the users. And we need something to demonstrate to the users.
Annie: I think that is not the way. I think that the users must ***(Sub-state 2.1)***
Hazel: No ***(Sub-state 2.1)***
Annie: what the tool can do for them, we cannot
Hazel: No. ***(Sub-state 2.1)***
Annie: we cannot say that you are going to have a tool, it is because we do not know their needs, we have to, I guess
Desmond: the users will tell you what they want the tool to do
Annie: oh yes. That is the first thing. Now the second thing, I think, I believe maybe I have got this wrong. But I think that she is saying that we are the ones who are going to be saying we have a tool, which is going to do this and that. ***(Sub-state 1.1)***
Hazel: Well it could do this and that. But at the moment if our screenreader is working well and the WebPages are well formed, then the screenreader can read out what is on the webpage.
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: the blind person can control and navigate and interact with the information.

[Lucy and Annie nod their heads] ***(Sub-state 1.1 x 2 people provides evidences)***
Hazel: what is it that the project can add to that
[Ben nods his head and says huh.] ***(Sub-state 1.1 x 2 provides verbal and non-verbal evidence)***
Ronnie: if I have read correctly, in the project now maybe I say something, which is not correct. If my understanding is correct this tool should integrate screenreaders and give a person like me, for example the possibility to sit in front of a computer and to talk and to have an interactive dialogue with this computer.
[Annie, Jonathan and Ben nod their heads] ***(Sub-state 1.1 x 3 people provides evidences)***
Ronnie: without using directly my screenreader or whatever it is, and make e-learning activities, which means you choose e-learning material
[Annie nods her head] ***(Sub-state 1.1)***
Ronnie: create e-learning material and create instrument, instrumental tools in the field of e-learning material. This is what I understood this project should create. So, now the tool should then be put in connection with screenreaders and create an interactive connection with the user, which should access both input and output directly by using this voice
[Someone says speech instead of voice]
Ronnie: is it correct? Or is it wrong?
Annie: We believe that is correct, that is what we thought at least in our Workpacakge ***(Sub-state 1.1)***
[Christopher nods his head] ***(Sub-state 1.1)***
Ronnie: in that case you must know in detail screenreaders, how they work, what their technical specifications are and this is the first step you have to take when you take when you work on your system I think.
Ben: I would like to add something. I think my opinion makes a difference between how our screenreader works and what is the intended in my opinion, in this project, the screenreader just takes whatever is on the screen and outputs it voice or Braille even or anything else. It does not have any intelligent knowledge about the content of the website.
[Annie says something to Christopher and nods]
Charlotte: I think Jaws 3. 7 does try and interpret some of the things on a website
[Morris sitting with arms crossed]
Ben: Yes, it will do that. It will try 0 for example you have table on the website, it will try to present your information, one cell by another. ***(Sub-state 1.1)***
[Charlotte nods her head and agrees] ***(Sub-state 1.1)***
Ben: That is one directional traffic. Just used on the screen to present it to the user. Now what I think what I think we can do with voice XML is have a close interaction with the contents of your website. You have this plug-in that you have in your browser, and this communicates with the new content of your website. It does not have to be neccesarilily what is just on the screen, it is a voice, dialogue version of what is on the screen.
[Annie, Fabian and Jonathan nod their heads] ***(Su-state 1.1 x 3 people provides evidences)***
Desmond: in this case I can recommend the IBM home page reader. It really makes a difference between all these elements
[Ben says huh.] ***(Sub-state 1.1)***
Desmond: I can recommend it to you to analyze this. You can make a download a demo for 30-day trial from the IBM homepage, and you can have the complete manual of the IBM homepage.
Annie: yes. ***(Sub-state 1.1)***
[Annie nods her head as well] ***(Sub-state 1.1)***
Desmond: This could be a good step for you
Annie: Yes. ***(Sub-state 1.1)***
Desmond: for understanding
Annie: We did not know that. See that is the kind of information that we expect. We will analyze this technically, but if we do that step first we are getting the requirements.
[Annie uses a lot of hand gestures when speaking]
Desmond: I gave you exactly this information on the 21st of November
Annie: Yes. ***(Sub-state 1.1)***
[Desmond laughs]
[Others laugh as well]
Hazel: but also, I do not see how we can go to the users until we can have some kind of vision of what we are offering them. And I actually have not done a lot of user requirements work, unless you have something you can demonstrate or a concrete scenario over your current screenreader. That is what I am still trying to find out from the project what exactly it is that the project will make better and interacting with the web. Given we cannot go and ask them about their requirements for e-learning because visually impaired people have never had any experience of e-learning, so you have to be able to describe to them what it is they will get in a project e-learning web portal. So you have to have some kind of vision of what it is that the benefit of the project. That is what I am trying to find out from the technical side. I am not asking you to do the user requirements. But if I just go and ask people what their requirements for the web are. They will want a perfectly working screenreader. That is not going to be the answer that you want, because they do not know the kind of thing the project can offer them.
[Annie says something to Christopher. Cannot hear what it is]
[Lucy nods and smiles] ***(Sub-state 1.1)***
[Annie nods] ***(Sub-state 1.1)***
Kenneth: can I add another thing, which I think is very important, particularly in what we have been hearing about, part of the vision on speech input side. It really does significantly concern me that the whole idea of voice in voice out is a requirement to understand dialogue, voice dialogue which is not just about voice recognition, it is also about
[Ronnie laughs and says something to Elsie and Lucy]
Kenneth: it is about language recognition of some sort. Unless we are going to have a very tightly controlled dialogue where you have got learned command sequences, which is an extreme learning requirement on the user. There is a lot of work needed around the voice-input side of this if we are going to use voice to navigate. It is not a simple thing.
[Lucy and Desmond nod their heads] ***(Sub-state 1.1 x 2 people provides evidences)***
Kenneth: That concerns me because the only place I can see within the whole project where technical work is going to be done is work package 2, which has very limited resources to do it. That which completes in month 9, 3 months before we finish the user requirements. I do not see how we can, from the knowledge we are starting with and the knowledge you are expressing about your understanding of the subject I am very concerned about how we get to that stage where we can produce a portal which is voice controlled in that sort of timescale.
[Ronnie asks something to Elsie]
Ronnie: Can I just make a short remark. I would like to say, thinking about this project I was thinking about another kind of dream which is, I will take just one minute to say it because it is wasting time. I would like to waste one minute. This is asking somebody to take a card with GPS information system and transform this GPS information system into the system where you can drive your car by voice. You can imagine how difficult it is. I think our project is not difficult at that level, but it has similar difficulties, because it creates a new dimension of voice input as you correctly said. Because it is not using pre- [paused] pre-registered or pre-stored information in a library to be compared with the voice and then used and so on. Another problem is the cost of all this action. Screenreaders, blind people using screenreaders encounter higher expenses than other users. With screenreaders, can you imagine with such a system navigating in the web would become extremely expensive, in Europe at least where urban conversations are text very highly, in comparison to the United States in comparison. So, there are many problems. So, I think we should never forget that our project is probably, I say probably much more a demonstration project than a real technical and practical solution. It is more an academic exercise in the end. But we have to do this academic exercise, either way, that we have some practical result in the end, and we do not know if it will be usable or not for many many reasons. So, we need to be very clear with what we want to reaErine and I think that if somebody undertakes the project I, I think normally, the person who invents the new machine does not go in the street, to the street and ask the people passing by what kind of machine do you need my friend?
[Kenneth nods his head] ***(Sub-state 1.1)***
[Fabian is biting his nails]
[Jack and Jonathan are sitting with both elbows resting on the table, with their hands on their face. Charlotte is doing this as well]
[Morris is sitting with his arms folded]
[Charles is leaning back in his chair]

Ronnie: Those who have invented the machine must have an idea and make a prototype. And on the basis of the prototype they users come and say this is interesting or not.
[Christopher nods and fiddles with his pen] ***(Sub-state 1.1)***
[Desmond nods] ***(Sub-state 1.1)***
Ronnie: I do not know if this is clear or not?
Hazel: I think the balance is not going to far down the development road, so that when the users say actually we would like it this way, you have committed to much to your development effort.
[Lucy nods her head] ***(Sub-state 1.1)***
[Ronnie says yes.] ***(Sub-state 1.1)***
Hazel: But repeatedly we have found, and it is interesting that you have brought up the example of the GPS, when we helped to develop a GPS navigational device for blind people, when we went to talk to them, we did user requirements and we have very little idea of what the system would do and the blind people said we have never had anything like that, what will it do for us?
[Annie, Jonathan, Desmond and Ben nod their heads] ***(Sub-state 1.1 x 4 people provides evidences)***
Hazel: We had to have a vision to tell them of what it would do. Hopefully this afternoon we will be more clear. At the moment I am not clear yet, as to how the project system is going to interact with the screenreader
(Sub-state 5.1)
[Charles raises his hand]
[Lucy nods her head] ***(Sub-state 1.1)***
Hazel: is where you come to the project website, will your screenreader be turned of so then the project system is in control?
[Annie nods and says something to Christopher. Cannot hear what was said] ***(Sub-state 1.1)***
Hazel: therefore do you have to substitute all the functions and controls that the screenreader does. Is that part of the user requirements specification that you need? Because that is what I put in here, but then I thought well maybe that is not how it is going to work. So, I do not understand the limit of what the user requirements need to be, because I do not yet understand exactly what the project system is going to do.
[Kenneth nods and says huh and looks at Hazel] ***(Sub-state 1.1 x 2, provides verbal and non-verbal evidences)***
Charles: Maybe the users could have a better idea of [pause] what would be to define the user requirements if they had some idea of what voice XML in several languages actually promise.
Hazel: absolutely, yes. ***(Sub-state 1.1)***
[Ronnie says huh in agreement] ***(Sub-state 1.1)***
Hazel: But for the users I think for example, I would propose that we would make a wizard of oz prototype of some kind. So, some kind of website that shows what the promise of voice XML for blind users is and how it would interact with their screenreader, even with by wizard of oz prototype may not really function in the way when the system is built, but it will actually just demonstrate, illustrate to the blind users this is what it could be like, this is how it could be better than your current situation.
[Lucy, Annie, Jonathan, and Desmond nod their heads] ***(Sub-state 1.1 x 4 people provides evidences)***
Jonathan: Well, for example the website of the project can be a prototype
Hazel: Absolutely. ***(Sub-state 1.1)***
[Ben nods his head] ***(Sub-state 1.1)***
Hazel: Yes that would be very good. ***(Sub-state 1.1)***
Ben: We could provide the voice XML [pause] page, document
[Hazel says uh-huh.] ***(Sub-state 1.1)***
Ben: and then I think the workpacakge 3, sorry workpackage 2, the plug is going to be developed we find. This could be the best case for the plug in and so that you already have a real working example
[Ronnie says something to Lucy. Cannot hear what it is though]
Hazel: Yes. ***(Sub-state 1.1)***
Ben: of voice XML.
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: Yes that would be fantastic. Cos then I think we can do task 1.1 more meaningfully, of interviewing people ***(Sub-state 1.1)***
[Annie says something to Christopher. Cannot hear what is said]
Hazel: So when can that be
Ben: how, how
Ronnie: How is, the dissemination work for us, for example will become possible. Now we do not have anything to disseminate
Ben: what we were planning to do today is to give some introduction
Hazel: Right. ***(Sub-state 1.1)***
[Fabian and Christopher say something. Cannot hear what is said]
Ben: of voice XML.
[Ben looks at Charles]
Ben: Then these things will maybe become a bit clearer.
[Hazel says uh-huh.] ***(Sub-state 1.1)***
Ben: and then in the afternoon, show some samples
Jack: sorry
Charles: yes, I agree we need to film some voice XML pages. Most of these names are from the United States. So, ***(Sub-state 1.1)***
[Elsie is rubbing her chin]
Hazel: Does this limit the voice
Charles: limit it to the telephone
Hazel: limit it to the voice input aspect?
Charles: if they allow voice input, yes. ***(Sub-state 1.1)***
Hazel: right, yes. ***(Sub-state 1.1)***
Charlotte: yes. ***(Sub-state 1.1)***
Ben: they are now mostly concentrated on telephone conversations
[Charles says yes.] ***(Sub-state 1.1)***
Ronnie: in the United States because it is not expensive.
[Ben says huh.] ***(Sub-state 1.1)***
Ronnie: in Europe you never do it because it is too expensive.
Ben: it is not the intention of the project to have a web page talking to the phone.
Ronnie: yep, yes. ***(Sub-state 1.1)***
Jack: can we put a date for this? Do you have a
[Annie says something to Christopher. Cannot hear what was said]
Annie: we were about to say that, we were supposed to start in March the prototype, but, was going to be the tool,
Jack: yes. ***(Sub-state 1.1)***
Annie: but we were discussing between us that maybe the project is not so well planned,
[Lucy agrees and uses hand gestures] ***(Sub-state 1.1)***
Annie: because what you need is a prototype first to show it to the people so that they
[Lucy nods her head in disagreement] ***(Sub-state 2.1)***
Jack: but we are not talking about the prototype of the tool ***(Sub-state 1.2)***
Hazel: no. ***(Sub-state 1.2)***
Jack: but
Annie: I know, I know. ***(Sub-state 1.2)***
Jack: but a
Annie: something
Jack: a prototype of something, what can be the result
Annie: yes. ***(Sub-state 1.1)***

Jack: what is the
Annie: we understand. ***(Sub-state 1.1)***
Jack: ok. ***(Sub-state 1.1)***
Annie: but since we are going to be the one to produce that prototype and we started to work 20 days ago, maybe, what I am saying is that the 6 month period for the requirements and something's like that, maybe should be before, before the prototype is made. You know, that first maybe the project should be planned, ok first you make a prototype, then we show it to the users, we see how the user react
Jack: yes that is what we are saying. ***(Sub-state 1.1)***
[Desmond nods his head] ***(Sub-state 1.1)***
Annie: yes. But the project is not planned that way. Because that should start in March. ***(Sub-state 1.1)***
[Jack says uh-huh.] ***(Sub-state 1.1)***
Annie: so its you know, it is a different organization
Jack: what I
Lucy: The software to read the page of the link. We had the same problems, but we decided with two others from the university, which is working with us. They said they would give us a description of a imaginary tool. What it does and how it is. We went to the users and we asked them 'is it ok for you?' and they said no, we want it to be smaller, we want the software to work with any system with the barcodes, etc, etc. So we were able to give user requirements, which is not possible now in this project.
Lucy: So when we are talking about the prototype, it is not a real prototype that you will produce and give to the commission. It is something, which has some relationships with what we want to build up.
[Fabian, Jonathan, Annie, Kenneth nod their heads] ***(Sub-state 1.1 x 4 people provides evidneces)***
[Some others in the team say yes as well] ***(Sub-state 1.1)***
Hazel: but,
Annie: yes, yes. ***(Sub-state 1.1)***
Hazel: but we would call that, if you just give people an imaginary description, we would call that a scenario. So, we can do it as a scenario. I actually think in the case, because this is web technology
[Annie says something to Christopher. Cannot hear what is said]
Hazel: I can imagine, mailing a prototype, a barcode reader, because this is a physical object, it is difficult to make one.
[Lucy nods her head] ***(Sub-state 1.1)***
Hazel: but because this is web technology, I think we could actually go one step further
[Ronnie nods his head] ***(Sub-state 1.1)***
Hazel: and to have something on the web, that illustrates the principles
[Charlotte nods her head] ***(Sub-state 1.1)***
Hazel: but until we have that vision of what it is the project is offering we cannot make the scenarios or the website
[Lucy, Charlotte and Kenneth agree] ***(Sub-state 1.1 x 3 people provides evidences)***
Lucy: A scenario plus something
Hazel: yes. ***(Sub-state 1.1)***
[Kenneth says huh.] ***(Sub-state 1.1)***
Hazel: but you know even if it were a scenario we could do it that way. But can this not be done in work package 2? Which has already started? Because that is where the plug in is being developed.
Ben: it is too early
Hazel: yes. ***(Sub-state 1.1)***
Ben: you need some testing material anyway for the plug in
Hazel: yes. ***(Sub-state 1.1)***
[Pause]
Annie: We tried to but it's difficult because the thing is already laid out. We were saying that you would have to change the project direction in some ways in the benefit of the project I think
Hazel: but why is this
Annie: no, it's not just changing
Hazel: the project direction
Annie: but, just the arranging of the packages.
Hazel: no it is not changing the arrangements of the packages. ***(Sub-state 2.1)***
[Kenneth says huh in agreement] ***(Sub-state 1.2)***
Annie: we are not supposed to start developing something now That is what I am saying. We have very few people, and since we have very few people we need to train them.
[Ronnie whispers something to his neighbor]
Hazel: Can you give us the scenario then? Do not develop anything. But tell us your scenario.
Annie: yes the scenario will be easier, but since you were saying that you wanted a page, that will be harder, but the scenario will be yeah, we could start work on it right now. ***(Sub-state 1.1)***
Hazel: I think we are going to find this repeatedly because for example in workpackage 1, we have not specified the user requirements document for the e-learning portal. We have only specified the document for the requirements on the design. There are many aspects in the project where there is not enough detail, and we have to fill in the detail as we go along. So I think if people want the project to succeed they have to be a bit [pause] flexible about this. So I was doing work on what I could to try and understand the situation But I feel I can't really go further on task 1.1 until I understand more about what the vision of the project is.
[Jonathan nods and says huh] ***(Sub-state 1.1 x 2, verbal and non-verbal evidences)***
[Annie nods] (Sub-state 1.1)
Lucy: I would like to add to this about e-learning. As Hazel said generally speaking blind people do not use it, they do not know about it.
[Annie nods her head and says huh] ***(Sub-state 1.1 x 2, verbal and non-verbal evidences)***
Lucy: So we should perhaps have something some sample and try to ask the blind people, how they would like to be. Because I think interactivity which is essential in our project is perhaps not the same when you have a blind and when you have a sighted people
[Annie and Ben nod their heads] ***(Sub-state 1.1 x 2 people provides evidences)***
Lucy: and about assessment
Ronnie: absolutely. ***(Sub-state 1.1)***
Lucy: I am sure it will be different, and about the technology, I am not sure we will teach in the same way, because I know how to write a e-learning, a learning at distance course. So, I think it will be different. There are pedagogical and psychological aspects, which certainly shall be different. So we have to have samples to begin with.
[Annie and Christopher nod their heads and say yes] ***(Sub-state 1.1 x 4, 2 people provides verbal and non-verbal evidences)***
Ben: But also, referring to earlier, to I think Hazel what interesting thing you could do is [pause] there are a lot of online tutorials on the web already
[Lucy nods her head] ***(Sub-state 1.1)***
Ben: I do not know if they are very accessible we can find that out. ***(Sub-state 3.1)***
[Hazel says uh-huh.] ***(Sub-state 1.3)***
Hazel: Yes. ***(Sub-state 1.3)***
Ben: Fire out some existing tutorials to blind people to visually impaired people. Let them try using their normal accessibility tools and see what is wrong, what needs to be better.
Ronnie: To do this now at this very stage, you need blind, I say blind specialists more or less.
Ben: Why blind specialists? ***(Sub-state 2.1)***
Ronnie: because not only they have to use the system, they have to evaluate it, the tutorial. So we really need experienced people. You can find them that is not a problem. It is not simply a user analysis, it is a little bit more than that.
Ben: Yes. Visually impaired people that are used to visiting websites, but it depends on what the tutorial is about. ***(Sub-state 1.2)***
Ronnie: You know visiting the websites and using websites is something different
[Annie and Christopher are talking to each other. Cannot hear what they are saying.

Ronnie: You must consider that blind people do not normally navigate very much in the web [pause] because it is to slow for them. And a consequence to this is that if you take part of the people who are used to working on the net, it is not the average blind user. Blind users normally go to using e-mail, and only some of them go further than that. So, it opens new perspectives. It is difficult to find people all of a sudden who are able to evaluate an e-learning tutor. I do not know if it is clear, but I
Charles: I think that is a better understanding. ***(Sub-state 1.1)***
[Ronnie says uh-huh.] ***(Sub-state 1.1)***
[Elsie nods her head] ***(Sub-state 1.1)***
Hazel: So, I mean I think it is a good idea, the only problem is that we need blind people who are interested in taking a tutorial in voice xml. ***(Sub-state 1.1)***
[Annie nods her head] ***(Sub-state 1.1)***
Ben: I do not think it really matters if the tutorial is in voice Xml, about voice XML or any quality ***(Sub-state 3.1)***
[Hazel says huh.] ***(Sub-state 1.3)***
Ben: it is just e-learning
Hazel: oh, ok, sorry I misunderstood. ***(Sub-state 1.1)***
[Jonathan is nodding his head continuously] ***(Sub-state 1.1)***
Hazel: We have to have enough people who are interested in following a course, this is not a trivial, again I brought this up in Madrid
[Lucy and Ronnie agree] ***(Sub-state 1.1 x 2 people provides evidences)***
Hazel: What is the e-content really going to be. You then have to find people who are interested in pursuing these courses and so they can be evaluated

Partner 3

Charlotte: We started looking at general web development tools and the functionality that they provide and any accessibility
Ronnie: Can you speak a little bit louder please?
Charlotte: and the functionality that they provide and some accessibility issues to do with them. We also begun collecting some of the needs people have when looking at websites generally – navigation issues people have with websites in general. Also what information is there on accessibility? There is a lot of information out there on website accessibility and a lot of the Wc3 guidelines and things like that we have been looking at general issues surrounding accessibility on websites and also looking at the things that make looking at websites difficult to use, so that they can be avoided where possible. Also why some things are difficult to use.
[Morris and Lucy talk. Cannot hear what is being said]
Charlotte: so, that is the area of work, which we have been working on. A lot of literature review, looking at general web authoring tools.

Expected presentation from Partner 4

Jack: The Italian partners have already left. He said he will email his presentation about his work.

Partner 5

Lucy: With the German and the Spanish organizations of the blind, and the Italian organizations of the blind we had a big project on email in a practical way, not like WI which is the theoretical way, accessible to website and the German, the French and the Italian managed and wrote their website, which were totally accessible and which were also interesting. For Spanish for instance it was only text, so all the results were given in our file of documents and part of it has been given yesterday by the Germans.
[Annie. Christopher and Jonathan nod their heads] ***(Sub-state 1.1 x 3 people provides evidences)***
Lucy: and the second thing I would like to say is that, I tried as everybody here to look at e-learning sites. I went to a very high level and I saw that some pages which were kind of advertisements of e-learning systems, so I could go and look at it, but I did not enter into the e-learning system itself because it was expensive and I did not want to use money for that. So, I think that now we shall go deeper into the user requirement when you shall give us some samples which we can test with our students, the blind students.
Jonathan: We have changed the structure of the duration of the months for the workpacakges, because the workpackage in number 4 probably must begin before
Lucy: I think this is a common feeling. ***(Sub-state 1.1)***

Partner 7

Morris: Well, I have already touched upon about what I wanted to say now earlier on, when I talked about the need to strike a balance between the identifying. Let me start again, first of all I would like to say that all the workpackage we were interested in, particularly 4, which starts in months 7 or 8. Of course work needs to start much earlier and we have started work by looking at a number of websites to see what was on offer. Then came the question on the balance between, for demonstration purposes we needed to find a split between a general mainstream website with something of particular interest to blind people.
[Kenneth looks at Charlotte's paper and whispers something. Cannot hear what it was]
Morris: I have already told you that 50% of the computer oriented content, well our feeling is that we should not look at that dimension. The language for example, I gave is one example exploring another fields. There is one major question that I think we are faced with. Once we have identified the kind of content we want for the demonstration the e-learning site for the portal, we need to look at how to ensure the transfer of that content. There are questions such as copyright, you know property, because as we understand it we do not think the project plays for the partner 6 to design the e-learning content.
[Elsie is fiddling with her hair for a few seconds. She has her face looking down]
Morris: So, this is what we have been doing. It is more preparation work for this first stage, and again we were not really clear whether we needed wait until month 7 to use the money given to us, as the question we raised yesterday seems clear that we can start work and hire to work somebody to work more effectively on the project.
[Jonathan nods his head] ***(Sub-state 1.1)***
Morris: Generally speaking we need more technical guidance as to how Wp4 will be organized. Thank you.
Jonathan: I think right now it is possible for this learning material. Now we need to decide what material and from where
Morris: Do we agree that the content, can the already existing content, how can it be transferred?
Jonathan: I think so, I think so. ***(Sub-state 1.1)***
Morris: ok. First of all we need to identify what sort of content they continue our research to see what e-learning websites there are out there, and start negotiations with the owners. ***(Sub-state 1.1)***
Jonathan: yes. ***(Sub-state 1.1)***
Charles: ok, what we can do for you in Lueven is take this content and convert it into voice XML. We have been studying voice xml and several languages for voice xml.
[Jonathan nods his head] ***(Sub-state 1.1)***
Several voice xml languages have been merged into one. There are some working drafts. The recommendation for the third quarter of next year when you want to develop voice xml pages, it can be done in other languages. For example you need linux to allow input by the user. You also need a scripting language.
[Christopher says something to Annie. Cannot hear what is said]
[Lucy is sitting with her arms crossed]
[Elsie is reading her own notes. Her elbow is resting on the table]
We have been looking at similar languages and the impression is that some of these languages, the development of the languages, the voice xml 1.2 specification in march last year. Do you like to receive some testing material or convert some content into voice xml?
Kenneth: can you give a brief outline to what extent voice xml defines voice-input side?
Charles: voice xml documents can contain all kinds of dialogues, forms and menus. Menus offer choices and when you make a choice you go to another menu or dialogue. Some site menus have forms. He can input the information by manual voice input or through the keypad. Most of these

languages are used by cellphones. In this form you can have one of the fields that you have filled in, when they are filled in they define when the document is executed. Also the number of events that you can find is for instance in find help event, which is executed by the event help or there is also the possibility to re-prompt the user if he gets the wrong kind of input or does not say anything.
[Eye contact between Annie and Christopher and then they start to talk. Cannot hear what is said]
Kenneth: I think that would be very useful in terms of, I think it again begins to answer some of the questions of what is the scope of this project, what is the vision, voice xml sounds at least if it is going to define some of the parameters of that vision. Again, I am noticing that we are talking about in the project program about voice navigation, and to what extent does voice xml provide that ability, or provide the guidelines on how to carry out that navigation by voice. Also to what extent we have to develop those guidelines and develop that, we are going to need to understand what voice xml gives us and where its constraints lie. [Kenneth uses lots of hand gestures to explain this point] ***(Sub-state 1.1)***
[Jonathan, Hazel, Charles nod their heads] ***(Sub-state 1.1 x 3 people provides evidences)***

Partner 9

Charles: This is a short presentation about voice mark up languages. The first question is why voice mark up languages. Voice xml technology thought that existing WebPages could be voicified by voice xml tags. This tuned out to be very difficult as the basic design principle that make a good web page are very different from the design principles that make an efficient voice interface. The most important voice mark up language is voice xml. According to the voice xml forum, it is a language for creating audio dialogues that uses synthesized speech, digitized audio and keypad inputs you use in the cellphones. It also includes telephony and mixed initiative conversations. With mixed initiative conversations, I will come to this later on. The worldwide consortium has, uses voice xml 1.0 specification and they use it as a basis for the next version of xml. Voice xml is designed for creating audio dialogues. Its major goal is to break the advantages of web-based development and delivery for voice applications. This is addition is important because the voice xml version will be large version developed by Motorola. The advantages of voice xml as perceived by Motorola are that people want a better mobile user interface, device independent, open standards, easier to program, similar to other voice xml based languages, utitiled like an existing web infrastructure. This all sounds very nice, but as easy as it sounds because to develop voice xml applications you have to learn several languages. Of course you have to learn voice xml, ecmus scripts, exmus scripts is also known as Java scripts and j-scripts in Netscape. You also need to learn the grammar format. There are several standards for grammar format, one is GSL or the grammar specification language was created by Uance, j-speech was developed by Sun and more recently there is this speech recognition grammar system which is being find by the Worldwide web consortium. And another thing scripting language such as pearl, or Java, are that web developers are used to this kind of environment, so it is not such as big problem. Voice mark up languages in general, during 1990's several companies developed their own mark up language, AT&T developed a phone mark up language, Lucents also created a language called Phone mark up language, which differs from AT&T's mark up language. Motorola developed foxml, it focuses more on keypad input. HP labs developed tokenml and IBM developed speechml. Most of these languages were developed into one language which became voice xml 1.0 and all the companies that I mentioned are now members of this forum, voice xml standard. The voice xml specification itself, the first initial specification in April 1989, then March 2000 had its specification released. This specification was then released to the worldwide web consortium. The worldwide consortium are now using it on the basis of voice xml 2.0, which is now a working draft
Ronnie: Sorry now working
Charles: working draft
[Christopher and Annie are talking to each other. Cannot hear what they are saying]
Charles: um, specifications of the world wide web consortium go through several stages, so working drafts, lost call, works recommendation, and each stage takes several months. I think it will become a recommendation in the 3rd quarter of next year Voice xml 1.0 left a few things that were not clear. It became clearer in voice xml 2.0. There are new features, speech recognition grammar format, this is based on the j-speech grammar format. The reason why this is a separate language is that the worldwide web consortium wants to use some of these specifications in conjunction with other mark up languages. The worldwide web consortium, voice xml comprises 7-communication architecture. To have a document server, for instance a web server it processes a request from a client architecture and through voice xml it interprets the contents. The server produces voice xml documents to reply. So voice xml is xml based, more structured than html, describes the structure and semantics of data and not its presentation The fact that it is xml means that alt tags are closed. The structure of voice xml documents is described as description. Voice xml is used to develop voice applications. In navigation you have one document route and several other documents. The document route is useful for defining variables and certain kinds of input that are valid in the whole document The documents have their own grammar and specific other kind of inputs. So the application document is loaded when any other document or application is accessed. One another concept in voice xml applications is the session. You also have an element for declaring variables and to contain client size scripts which are normally written in egda scripts. You can also define several other catch elements or events and can also use the link event for transitions to other documents in the application or dialogue. Forms can contain zero or more field elements, so when the voice xml browser cannot get a field element, the user is prompted for certain values and the user continues. For each field, it can specify the grammar that allows the input. This is very important because continuos speech recognition would mean the recognition of any utterance This is very hard, but if you scope the allowable inputs it is easier to recognize an utterance by the user. Menus can contain choice elements, so the user is presented with a number of choices, and the user can the keypad or voice to select a choice and then he gets to another dialogue which can be either a form or a menu. This is a simple voice xml document. It begins with the xml declaration, voice xml declaration. It contains one form. This form contains the block element. Block elements are used to contain executable content. The block element contains a prompt element. The content of that prompt element is just hello world, and the prompt on that is closed. The output of this document is just hello world.
[Christopher and Annie are talking Cannot hear what they are saying]
Lucy: How long is this prompt?
Charles: sorry
Lucy: How long may be a prompt?
Charles: What do you mean how long?
Lucy: You have here hello world. How long can it be, how many words can it take on the line?
Charles: ah the limit of the [pause]
Lucy: of the prompt
Ben: I do not think there is a limit ***(Sub-state 2.1)***
Charles: I am not aware of any limit ***(Sub-state 1.2)***
Ben: it depends on your application that grabs this document
[Lucy says uh-huh and nods her head] ***(Sub-state 1.1 x 2, provides verbal and non-verbal evidences)***
Ben: if you have an application
Lucy: uh-huh. ***(Sub-state 1.1)***
Ben: and it accepts only prompts from so many characters
Lucy: uh-huh. ***(Sub-state 1.1)***
Ben: Then it is limited. Voice xml does not limit it
Lucy: ok. Thank you. ***(Sub-state 1.1)***
Ben: ok. ***(Sub-state 1.1)***
Hazel: ok, is there any control, I mean once it starts saying hello world, if it then went on and on and it was a whole paragraph, can the user then control the output in the way the user can control the screenreader? ***(Sub-state 1.1)***
Ben: Voice xml is only the enabler
Hazel: Right. ***(Sub-state 1.1)***
Ben: so it has a prompt and maybe some action the prompt is interrupted, but you have to catch these events by the applications
[Annie, Christopher and Lucy nod their heads] ***(Sub-state 1.1 x 3 people provides evidences)***
Hazel: right. ***(Sub-state 1.1)***
Ben: by Java script
Hazel: so, will someone still be able to use their screenreader commands, or will the project provide a separate set of controls. That is one of the things I am very confused about.
Charles: That is a bit early to say. ***(Sub-state 3.1)***
Ben: That is a big problem. ***(Sub-state 1.3)***
Hazel: Right. ***(Sub-state 1.3)***
Charles: We will discuss if afterwards I think

[Hazel laughs]
[Charlotte laughs as well]
Charles: This is an example, I have left out the xml declaration because it is an option, the xml element, which contains a meta element that maintains the document. Then you have form elements which has an ID, this is useful when you have an application which consists of several forms, and several documents perhaps, so you can return to something, the id is used to jump to, so if you have several form elements, it distinguishes the form elements. The id is unique for the elements in the document. That is what it is used for. The form element contains a field element. Then there is a prompt, which asks you for would you like coffee, tea or juice? And then there is a grammar, and the gsl format, that is a device to allow the input, coffee, tea or juice. So, if the user says one of these options the browser jumps to one of these field elements which contains a prompt. The prompt says your and takes the value in the field name. So for instance it says coffee, it says your coffee will be ready in 10 minutes. So, the expression attribute of the value element responds to the name attributes of the fields
[Hazel and Charlotte say uh-huh.] ***(Sub-state 1.1 x 2 people provides evidences)***
Charles: Then the application is all it does
Kenneth: Does it do value handling of errors for instance if the answer is hot chocolate
Annie: yes. ***(Sub-state 1.1)***
[Hazel laughs]
[Some other laughter in the background as well, including Ben]
Lucy: I was thinking of that [nods her head while saying this]
Charles: This document does not define what should happen. It is a platform specific event. So, what will actually be said will depend on the platform. Because there is no match element [pause]
Charles: Um, like that is not an option, then
Ben: what is the end element Charles?
Charles: well, voice browser event, when there is no match to one of the inputs
[Ben says uh-huh in agreement to what Charles is saying] ***(Sub-state 1.1)***
[Fabian, Christopher and Annie nod their head as well] ***(Sub-state 1.1 x 3 people provides evidences)***
Charles: This is the one I talked about in backend scripting. Here is an example in Pearl. This is how you can use Pearl to produce dynamic voice xml output. This is useful to access certain data in a database things like that. There are also a number of other voice mark – up languages. There are others, which I do not think are useful in a web context, but I will investigate this. Jesml, the j speech or Java script mark up language is also an xml specification for speech engines, so speech synthesis and no input. The elements that describe a structure of the document and a number of these elements are formed by voice xml. Say as element, first you have a sequence of digits. Some digits or phone numbers or dates and say as elements you have attributes to define what kind of, what the meanings of these digits are.
Hazel: What about going back to our conversation this morning about different languages. So, if you had a system for learning different languages. Can you tag this, pronounce this for English, pronounce this for Dutch, pronounce this for Italian
Charles: There is something, a language attribute which you can set. If your browser or plug in, voice xml plug in does not support your language, you
Hazel: Yes, right, ok. Good assuming you did ***(Sub-state 1.1)***
Ben: you would need
Hazel: Yes.
Ben: to go on with your question, if you have a [pause] tutorial in French
Hazel: yes. ***(Sub-state 1.1)***
Ben: teaches you Spanish
Hazel: uh-huh [Hazel nods her head as well] ***(Sub-state 1.1 x 2 provides verbal and non-verbal evidences)***
Ben: and you would need both the French and the Spanish plug in
[Annie and Hazel say yes and nod their heads] ***(Sub-state 1.1 x 4, 2 people provides verbal and non-verbal evidences)***
Ben: So we have to think about it technically, how it can be done
[Annie and Hazel say yes and nod their heads] ***(Sub-state 1.1 x 4, 2 people provides verbal and non-verbal evidences)***
Ben: how we can install the plug in
[Annie says uh-huh.] ***(Sub-state 1.1)***
Ben: or include more than one language in one plug in that will be necessary
[Annie is saying something in support of what Ben is saying but it cannot be heard]
Charles: Another language is dialogue mark-up language, which is being developed by Dennis Oi. It is an open source project hosted by SourceFor, which is a famous website for all kinds of Open Source Projects. Next is Ballan which is for defining a written set of processes and there is also dietmark language, mentioned in The project proposal I think, but [laughs] I do not think it is the same language. This is something else I think
Jonathan: no, I think it is that. It was our requirement that ***(Sub-state 2.1)***
Charles: because I have the impression that this is being developed more for the Linux environment, to make files, compilations, installations, and there is also Siebel which is being maintained by the Siebel Consortia language for controlling text to speech engines. As SSML or speech synthesis mark up language, STML or [pause] and GSML, fortunately the documentation which was circulated by Barlaps is no longer available, so
[Hazel laughs]
Charles: so I do not know if there has been any recent progress. The most recent documents, which I have found, it is from august last year
Ben: That is a bad sign. ***(Sub-state 1.1)***
[Hazel and Ben laugh]
Charles: I think so. Then, there is SALT, for speech application texts, which is found by the SALT forum. [Pause] This is maybe in a portal language because it is one of the members of finding the SALT forum is Microsoft and Microsoft it not present in the Voice XML forums or any of the other Voice XML related group. It tends to produce a very simple set of text, but since this is a very recent initiative there is no specification, maybe coming next year, we do not know yet. This specification has already been submitted to the World Wide Web consortium. [Pause] SALT, from what I read, I think it is more applicable towards web applications, than phone applications, so it is not completely the same domain as Voice XML, I think. Then I have some questions, what exactly is supported in the Conpalbras Plug in? Because we have voice XML 1.2 and then we have the working draft for voice xml 2.2. So which one is actually supported? ***(Sub-state 1.1)***
Ben: I think we should delay that till tomorrow
Annie: yes. ***(Sub-state 1.1)***
[Annie and Christopher both say yes.] ***(Sub-state 1.1 x 2 people provides evidences***
Ben: I also do not know if anyone is interested in this
Annie: Yes we also answer the technical questions ***(Sub-state 1.1)***
Ben: yes. ***(Sub-state 1.1)***
Charles: There is also the question of which grammar is supported
[Annie says uh-huh.] ***(Sub-state 1.1)***
Charles: with the future specification of the World Wide Web consortium So, that is it for now. I can also show some more examples of Voice XML documents.
Hazel: Have you got any examples of voice xml documents actually working, because in Madrid we did not hear any voice input, we did not hear any voice output applications
Charles: Wel
Hazel: so
Charles: that kind of thing you have to put some kind of voice xml documents on the web server and then [pause] you need access to voice xml gateway by telephone, so I did not prepare anything of that kind
Hazel: right. Are we going to have to demonstrate anything to a user, are we going to have to go via voice xml ***(Sub-state 1.1)***
Ben: just, go trying the telephone
Hazel: the telephone
Charles: another option is downloading some Motorola development kits. I think you can, but I am not sure, but I think you can hear a few things [pause]
Hazel: Why do you need the telephone connection? I am sorry, but
Ben: because voice XML, at the moment, it is only aimed at telephone conversations

Lucy: Motorola
Kenneth: I was going to say what I understood is that basically voice xml is around telephone dialogues
Ben: right. ***(Sub-state 1.1)***
Kenneth: and pure voice in, voice out
Ben: yup. ***(Sub-state 1.1)***
Kenneth: um, my understanding of the project was we were in a situation where we had a [pause] screen based system even though it was voice in, voice out
Hazel: huh. ***(Sub-state 1.1)***
Kenneth: So we have this spatial information which is easy to get back to [Kenneth uses his hands when he is speaking] pure telephone access is you are guiding everything by voice and you do not have no other means of control, and therefore once the prompt has passes it is in the past, you then have to issue a command to hear it again
Hazel: uh-huh. ***(Sub-state 1.1)***
Ben: uh-huh. ***(Sub-state 1.1)***
Kenneth: and in a more spatial arrangement you have the possibility of some cursors, of someone actually guiding to refine some information
Annie: uh-huh. ***(Sub-state 1.1)***
Fabian: uh-huh. ***(Sub-state 1.1)***
Kenneth: and to re-hear some information, which the interaction capabilities is entirely different
Ben: uh-huh. ***(Sub-state 1.1)***
Kenneth: in these two cases and to what extent is voice xml so tied to that, to the pure sequential voice in, voice out. There is, actually it does not support the more screen-based navigation
Charles: Well, since voice xml does not providing anything visual, so we are the same options as you have when you use the telephone
Ben: does it use
Charles: sorry a browser with a plug in to view voice xml pages, and you use just voice xml and to have more options
Ben: so unless, unless
Kenneth: so, the integration for instance, voice in and the use of some keyboard command
Charles: uh-huh. ***(Sub-state 1.1)***
Kenneth: probably will not be a feasible thing within voice xml
Ben: not within voice xml, possibility within the plug in and the e-learning websites we are going to develop It will be more than just voice xml. Voice xml is only the dialogue. So the website asks you something, for example, a navigation bar says we have this and this possibilities, and which one do you want to choose and you answer, so it stays limited, the voice xml part to dialogue, but you could enhance it as you said with a keyboard input and maybe some accessibility software output. But the question of how it can work together, yes I cannot answer it right now, but ***(Sub-state 1.1)***
[Some small laughter can be heard in the background]
Kenneth: This is getting more and more complicated
Hazel: yes. ***(Sub-state 1.1)***
Lucy smiles when Hazel says yes]
[Christopher and Annie say something to each other. Cannot hear what is being said]
Kenneth: I am, I am, loosing the concept
Ben: well
Kenneth: the concept of, again it all goes back to this question of vision
Ben: yeah. ***(Sub-state 1.1)***
Kenneth: personally, what you have just said makes it, makes that vision far more remote for me than it was before
(Sub-state 5.1)
Charles: on the other hand the advantage of um, from which the larger part of the population, because many people want a sufficient literate user of a computer or
Kenneth: well yes, for some dialogues, natural language gives you that much greater freedom. ***(Sub-state 1.1)***
Charles: uh-huh. ***(Sub-state 1.1)***
[When Charles says uh-huh, both him and Ben have their hands on their chins] ***(Sub-state 1.1)***
Kenneth: to deal with the problem of a lack of, of having a mountain of information that you can move around. If you are purely linked to the circumstantial version, especially if you are going to have a fixed dialogue which are then follow through, that sounds to me as [pause] back to some of the difficult situations with the telephone access systems and the complication you end up with very side menus, very deep menus
[Hazel says huh in agreement to what Kenneth was saying] ***(Sub-state 1.1)***
Kenneth: and we go back to the whole lost in hyperspace things, which Hazel has looked at before
[Annie and Christopher are speaking to each other. Cannot hear what they are saying]
Charles: The problem with natural recognition systems is that it is far more difficult to achieve. You have menus justifying what is the possible
Kenneth: yes, yes, but ***(Sub-state 1.1)***
Charles: you can, there is also an option for, I did not actually explain this, the mixed initiative dialogue. The examples I have showed are just choose this or that, there is also [pause], for instance say you have just prompt what you want to do and you say you want to transfer this amount to that and then instead of filling in field by field, several fields are filled in at the same time with one prompt
[Annie and Christopher are nodding their head when Charles is speaking] ***(Sub-state 1.1 x 2 people provides evidences)***
Charles: so,
Kenneth: So, that means you have some kind of language interpreting system then
[Ben nods his head] ***(Sub-state 1.1)***
Charles: well there is
Kenneth: in addition to voice xml
[Can hear talking in the background. I think it is Lucy. Cannot hear what she is saying]
Charles: There is always language recognition when you use
Kenneth: No. I said sorry, yes, there is always some language recognition, it's the depth of language recognition you are talk about. But what you have just said is that if you talk about phrases like I want to make, I want to move some money from this account to that account, that sounds to me like we are moving towards a natural language system ***(Sub-states 2.1 and 1.1)***
[Charles nods his head] ***(Sub-state 1.1)***
[Elsie and Lucy both look bored. Lucy also had a brief conversation with Rodolofo. Could not hear what was said]
Charles: yeah. But this types of dialogues are still in use in grammar, so you, the developer defines, still defines the allowable inputs. The problem with that is that kind of grammar needs to be developed very carefully, these are actually more difficult to develop than voice xml documents, because if, if the utterance of the user does not match the grammar you have to re-prompt ***(Sub-state 1.1)***
[Lucy nods her head and says uh-huh.] ***(Sub-state 1.1 x 2, provides verbal and non-verbal evidences)***
Charles: and it is difficult for the user to guess what exactly the syntax is, that the program expects, so
Kenneth: we are working on another EU project, which has to do with natural language, so we understand the problems and the issues
[Ronnie is speaking to Lucy. Cannot hear what is said]
Kenneth and the issues with depth and how far you go. The problem is from the users point of view, the more general the inputs, the more natural the input capabilities are
[Ben says uh-huh.] ***(Sub-state 1.1)***
Kenneth: the more it matches what the user wants to do. The more you move it to what you have just described in terms of your dialogue, the more you are actually leading the
Ben: yes. ***(Sub-state 1.1)***
Kenneth: the machine
Charles: yes. ***(Sub-state 1.1)***
Ben: what still, what we
Kenneth: in control
Ben: what you are describing is still a dialogue system

Kenneth: I agree. ***(Sub-state 1.1)***
[Ben, Hazel, Christopher and Jonathan nod their heads in agreement] ***(Sub-state 1.1 x 4 people provides evidences)***
Ben: it is more intelligence
[Annie says uh-huh.] ***(Sub-state 1.1)***
Kenneth: yes, I agree. ***(Sub-state 1.1)***
Ben: So, the basic principles stay the same
[Christopher nods his head and says yes.] ***(Sub-state 1.1 x 2, provides verbal and non-verbal evidences)***
Kenneth: but it shifts, as you are saying it shifts the resource intensity
[Can hear Ronnie talking to someone in the background in his language. Cannot hear what is being said]
Kenneth: in other words if we were, the more freedom we have in the input dialogue, the more efforts we have to put in
[Hazel says uh-huh whilst Kenneth is talking] ***(Sub-state 1.1)***
Kenneth: into designing those dialogues
[Hazel says uh-huh again] ***(Sub-state 1.1)***
Kenneth: in designing those, the corpus and what is possible, and that is what we need to look at very carefully, because we could easily produce a complete unworkable solution as far as this project is concerned. Um, [pause]
Hazel: Can I just back up a bit about this telephone access. Because this is the first time I have heard this said in the project and I just cannot see the relationship between telephone access which is very limited and there has been shown to have low [emphasis on the word low] acceptance, with an e-learning portal where people are going to want to be on, interacting with this information for an hour, two hours. I mean if we are talking about a student context, these are people who are probably, probably, but not necessarily have access to the internet, and I do not see how working with a screenreader, where does the telephone access, as you say I am loosing any vision that I have
[Charlotte nods and smiles to Hazel] ***(Sub-state 1.1)***
Kenneth: basically what you are doing
Hazel: and how this works
Kenneth: within a more general environment
[Hazel and Annie say uh-huh.] ***(Sub-state 1.1 x 2 people provides evidences***
Kenneth: you are embedding a pure voice in, voice out dialogue, which could have been carried out over a telephone
Hazel: Ok that is not ***(Sub-state 2.1)***
Kenneth: it is then embedded, how you move between the general
Hazel: general
Kenneth: environment
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: and the embedded environment
Hazel: yes, ok. ***(Sub-state 1.1)***
Kenneth: and how the user knows, that is what you are doing, and they are therefore changing, essentially changing the dialogue concept as they do so
[Christopher says uh-huh.] ***(Sub-state 1.1)***
Kenneth: is the question, which is
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: where I am beginning to loose it
Hazel: well that is what I was
Kenneth: yes.
Hazel: struggling with last week in trying to write the user requirements spec of how does this, how does a the screenreader and b the user know what kind of interaction
Kenneth: yes. ***(Sub-state 1.1)***
Hazel: they are in
[Annie says uh-huh.] ***(Sub-state 1.1)***
Hazel: and who has control
[Kenneth says uh-huh and nods his head. So do Annie and Christopher] ***(Sub-state 1.1 x 6 evidences, verbal and non-verbal, provides by 3 people) (Sub-state 5.1)***
Ben: in between can I ask a question, which I should have asked yesterday. Does, do normal screenreaders yesterday have voice input as well? For example a web page,
Hazel: no. ***(Sub-state 2.1)***
Ben: I do not think so ***(Sub-state 1.2)***
Charlotte: no you can get one, I think there is one which uses jaws and DragonDictate, but I think it is too, I think they have done a package, which links the two ***(Sub-state 2.2)***
[Ben nods his head] ***(Sub-state 1.1)***
Charlotte: but that is three bits of software
Hazel: yes, but that was apparently demonstrated ***(Sub-state 1.1)***
Charlotte: it was demonstrated ***(Sub-state 1.1)***
Hazel: at TechShare
Charlotte: Yes, I saw that. ***(Sub-state 1.1)***
Hazel: and, um it was successful
Kenneth: yes, it was very effective. ***(Sub-state 1.1)***
Charlotte: yes. ***(Sub-state 1.1)***
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: There you were actually driving a standard application, a totally standard application
Hazel: mhhm ***(Sub-state 1.1)***
Charlotte: mhhm ***(Sub-state 1.1)***
[Hazel and Charlotte nod their heads as well] ***(Sub-state 1.1 x 2 people provides evidences)***
Kenneth: and simply replacing the keystrokes
Hazel: uh-huh, but ***(Sub-state 1.1)***
Kenneth: by voice
Charlotte: uh-huh. ***(Sub-state 1.1)***
Kenneth: and voice commands, in and
Charlotte: uh-huh. ***(Sub-state 1.1)***
Kenneth: speech applications out
Hazel: uh-huh. ***(Sub-state 1.1)***
Charlotte: but it was having more than just DragonDictate and Jaws on the
Kenneth: uh-huh. ***(Sub-state 1.1)***
Charlotte: it's called the JawBone
Hazel yes, that's right. ***(Sub-state 1.1)***
Charlotte: and that handled any sorts of interaction between
Hazel: right. ***(Sub-state 1.1)***
Charlotte: DragonDictate [pause]
[End of presentation]

Quarterly reports (producing and sending them to the commission)

Jack: may I remind you we have to produce [pause] quarterly reports to the European commission. So it is end of December the first quarter for the project. That report will include all the progress of the project, the efforts that have been spent on the project, those kinds of things. I will also remind

you that cost statement is included, only up to the very end of the 12 months. Also, according to the [pause] contract this report should be sent to the European commission in the next two months, after the quarter So we have until the end of February to do that
[Morris is making notes using his device]
Jack: I hope to do this soon. As soon as possible.
Hazel: can you send us a template with how you want us to report on for the quarterly report
Jack: Yes. ***(Sub-state 1.1)***
Hazel: Yes, good. ***(Sub-state 1.1)***

Reporting

Jonathan: I think every 15 days everyone should provide a report of there work.
[Annie nods her head] ***(Sub-state 1.1)***
[Lucy is sitting with her hands on her mouth]
Hazel: No, not every 15 days ***(Sub-state 2.2)***
Jonathan: 3 weeks maybe
Hazel: once a month ***(Sub-state 2.1)***
[Kenneth nods his head] ***(Sub-state 1.1)***
Jonathan: once a month ***(Sub-state 1.1)***
Annie: I agree with Jonathan, the 15 days interchange of documentation with the partners. I believe that all the packages last at least 2 or 3 months and for example our work package 2 which started 20 days ago we have a 20 day delay because we are expecting the input from the partners that people are making and we have not received anything yet. So, we are doing our best here working with one person with Jaws and the wider documentation, but we are not experts on accessibility and we need your information and documents. We do not have anything now. We do not know what people are working on, or anything. We believe that we need to put more more strength into interchanging documentation. I think that every 15 days it is better than just once a month. ***(Sub-state 2.1)***
(Sub-state 4.1)
(Sub-state 5.1)

Project doubts

Jack: I think most of the project doubts should be clarified this afternoon.

Developing scenarios

Hazel: ok, so I turn on my computer, I am blind, what is the project, is the project going to be able to deal with everything?
[Jonathan nods his head] ***(Sub-state 1.1)***
[Elsie is sitting with her arms folded]
Annie: I guess that you do not have a screenreader, it should do the same things that the screenreader does, maybe a small part of it. But if you have a screenreader, then the project should help your screenreader and add a bit more functionality
Hazel: and what kind of functionality? [Laughter in Hazel's voice when she is speaking]
Annie: That is it
Ben: voice input
Hazel: voice input [repeating what Ben said] ***(Sub-state 1.1)***
Christopher: Voice navigation
Ben: a smarter dialogue system
Annie: yes. ***(Sub-state 1.1)***
Hazel: ok. ***(Sub-state 1.1)***
[Christopher says something to Annie Cannot hear what they are saying]
Ben: you ask a question
Annie: you integrate with Flash images, so some pages that may not be available to you right now using your screenreader would be available if you were using the project
Hazel: ok. can we have a demonstration of that soon? So, that if we can show that to blind people ***(Sub-state 1.1)***
Ben: the things that it can do for example, what do you want to do? I want to search, please give a search for it, you see it, and then you get a search result. It will be a lot faster than you searching on a website right now using a normal screenreader
[Christopher says something to Annie. Cannot hear what they are saying]
[Lucy looks bored. Has her elbow on the table and then folds her hands]
Ben: It is a possible example
Hazel: so I think maybe what we need is [pause] a list of things that the project system could do, which are difficult for people to do now, so that can illustrate them to users so that they can see the added value. So the things that I have heard yesterday and today were voice navigation, doing forms, we know doing forms is a problem, or has been a problem, so [pause]
Ronnie: still
Hazel: yep, menus, flash, Dragon and there was one more that was just mentioned and I have forgotten
Ben: Search
Hazel: search [pause] ***(Sub-state 1.1)***
Jonathan: and Hazel, help.
Hazel: Help
[Laughter from several team members]
Hazel: what is the problem with help?
Jonathan: I mean that the
Hazel: I mean what are the, it seems to me help systems work quite well with Jaws and current speech synthesis systems
Jonathan: no, but voice capabilities you can [pause] a lesson say for example in e-learning environment can interact with you, it can tell, it can ask you if you need some clarification, some synonyms, some related material, or for example, in a web environment, if you are writing a very complicated portal, it can do the synthesis of the portal and tell you that you have five main fields, that are sports and what do you prefer ***(Sub-state 2.1)***
[Kenneth is sitting with his arms crossed]
Hazel: Does my screenreader do that for me already? I do not see, I am happy to put it down but I do not feel that
Jonathan: I think that
Annie: with the screenreader, I mean you only get information from
Hazel: from what?
Annie: The screenreader.
Hazel: Yes. ***(Sub-state 1.1)***
Annie: is it a two-way change of information?
Hazel: but I get that two-way exchange of information using a screenreader ***(Sub-state 2.1)***
Annie: is it intelligent? I mean it depends on how you, the things you are doing on your page, it reacts in one way or another
Lucy: I think the screenreader is sequential
Annie: yes. ***(Sub-state 1.1)***
Hazel: This is still going to be sequential, because it is going to be voice
Charlotte: if you do a search
Annie: no, it is not going to be sequential, why ***(Sub-state 2.1)***
Lucy: exactly. ***(Sub-state 1.2)***
Ben: the difference is

Hazel: because it is voice, how can it not be sequential [laughs]
Lucy: no, no. ***(Sub-state 2.1)***
Hazel: Are you going to talk to me lots of different things at once [Talking with a laughy note]
Lucy: You can synthesize
Annie: ah, in that turn you mean?
Hazel: of course it is sequential [laughs] ***(Sub-state 1.1)***
[Annie and Christopher say sothing. Cannot clearly hear what was said. It was to do with thew sequentially which was being discussed]
Charlotte: but if you have a help system that allows you to ask a question
Annie: you are going to interrupt the communication, you are not going to be in the same sequence all the time. You are not going to start, um, when you are in a page you are not going to start at the beginning and go to the end
Ronnie: I feel stupid because I do not understand ***(Sub-state 3.1)***
[Hazel Laughs]
Hazel: That's ok, I do not understand either. [laughs] ***(Sub-state 1.3)***
Kenneth: I really do think that you do have to divide this up a little bit. We are making various statements about these things, which we are sort of saying well its not intelligent. The system is only as intelligent as to what is behind it, and what the application is. Um, the reality is that voice input in whatever form it is, is only going to, will only produce out of the voice recognition system, a string of command which will then be used by the application to do something
[Hazel says uh-huh.] ***(Sub-state 1.1)***
Kenneth: that command can be just as easily provided by a keyboard input. Because it is just another form of input. If you divide the system up, it pens where the intelligence is. So for instance in a natural language system, it can be keyboard driven. Voice is not necessary for natural language, and we need to understand that because actually some of what we are talking about here is nothing to do with the interfacing method, it is to do with the application of the e-learning application etc, which will provide us with the power. It is that where the intelligence lies. Um, the way you navigate that, we will get some help from whatever the interface is. Actually we have got a big problem, because the reality of the keyboard is that you have got a large number of keys, you have got a large spread. With voice, you have only got sequential input and therefore unless you are going to have a powerful interpretation of that voice, then you have got a very restricted capability. So, from the menuing system, we can give a set of options
[Can hear someone talking in the background. I think it is Annie. Cannot hear what is being said]
Kenneth: through the standard screenreader, and someone can type in which one of the things that they want. We used to do it over telephone access systems when you press, when it told you press 1 for this, press 2 for that etc. Voice capability comes into its own as we build intelligence into understanding what the human voice is saying, and therefore understanding much more grammar and phases etc. That is where we can end up with a vast degree of complexity, and this project envision going into that area. We simply do not have development time to do it. So, we do need to be careful of understanding what we have said we will do, and what actually, trying to work out where the benefits really lie. The questions which have been raised a number of times [laughs] is where is the benefit? Screenreaders are jolly powerful
[Ben says uh-huh.] ***(Sub-state 1.1)***
Kenneth: and people do have access to a lot of these systems already. Um, we need to therefore; we need to be a lot clearer of where genuinely we are going to get a benefit.
Ronnie: if I can imagine the use which would interest me for example, as a very normal user, will be that I sit down in front of my computer and say switch on, go to somewhere, open, look what is inside, list up, choose this, tell me what it is, and it tells me
[Can hear Hazel whispering in the background to Kenneth. Cannot hear what is said]
Ronnie: and I can give an answer, I can give an answer and he registers the answer and we interact. I do not need, the project is important for those who do not use keyboard
[Annie says uh-huh.] ***(Sub-state 1.1)***
Ronnie: and they do not, they should not use the telephone. Telephone is useless, you must sit in front of your computer with a microphone
[Someone laughs when Ronnie says this. I think it is Charlotte]
Ronnie: and then have a dialogue with your computer, and listen from [pause] from the sound blaster of your computer, and so on
[Someone is talking in the background. I think this is Annie. Cannot hear what is being said]
[Hazel says uh-huh.] ***(Sub-state 1.1)***
Ronnie: this is what I imagine for the project
Hazel: I, I
Ronnie: otherwise I cannot see what they are for
Hazel: well, I am trying to get a concrete, a more concrete vision, a more concrete imagination and it seems to me that we are bouncing backwards and forwards between the advantages of voice input which I think are quite clear and the advantages of voice input over keyboard access. Then the advantages of voice output. So, all this business about things will be presented in different ways, I am trying to get a handle on what that actually means, or to have some good examples that we can show people. Charles do you want to
Charles: as far as I know the project is not about actually talking to machinery, and doing things at the level of the operating system, it is about a web application
[Hazel says uh-huh.] ***(Sub-state 1.1)***
Ben: The example that you are referring to already exists. There is software available with speech in and speech out, and if you say start Microsoft Word, it opens it ***(Sub-state 1.1)***
[Kenneth says uh-huh.] ***(Sub-state 1.1)***
Ben: the program and then opens documents and then goes to the documents. I mean I tried it myself
Ronnie: is it easy to interact with?
Ben: what do you mean by that?
Ronnie: oh, what I need when I am working in e-learning
Ben: it is not directed with, it cannot say to you that
Ronnie: Let's take a frame. There is a frame on the screen and you say what is inside? Question number 1, how many inhabitants has Italy and you must put in your answer. Then question number 2, how many square kilometers has Germany? And you put your answer inside. At the end, he makes the evaluation, your response, your evaluation is positive or negative or whatever it is. In present, the actual system does not do this.
Ben: not on websites, no. ***(Sub-state 1.1)***
Charles: This can easily be developed with voice xml
[Lucy says uh-huh.] ***(Sub-state 1.1)***
Jonathan: is this possible to have a portal
[Can hear Hazel whispering. Cannot hear what she is saying]
Jonathan: which is accessible to voice? You say only voice, I mean everything is
Hazel: voice in or voice out?
Jonathan: with voice in and voice out ***(Sub-state 2.1)***
Hazel: uh-huh. ***(Sub-state 1.2)***
Jonathan: can be accessible for also for a normal person, but is accessible by voice
Hazel: uh-huh. ***(Sub-state 1.1)***
Jonathan: I think
Ronnie: for sighted people still use mouse, don't they?
Hazel: at the moment yes. ***(Sub-state 1.1)***
Ben: I think the main difference the project and current screenreaders is that what you have now is a web page, which is designed for sited people, with a lot of information on it
Hazel: uh-huh. ***(Sub-state 1.1)***
Ben: and for sighted people, it is very people for them to pick something out, for blind people it is very difficult
Hazel: Yes. ***(Sub-state 1.1)***
Ronnie: yes. ***(Sub-state 1.1)***
Charles: That is what the screenreader helps you with. You have a lot of redundancy that way. You always have to scroll down and then up and so on and so on. It makes you loose a lot of time, it is annoying. What you could do with voice xml is try to, voice xml is more together with the project plug in is not made for sighted people but for visually impaired people.

Ronnie: Be careful, because if you tell me this is made especially for blind people, are you talking about the structure of the website
Ben. yes, the way that is ***(Sub-state 1.1)***
Ronnie: or the content of the website
Ben: not the content of the ***(Sub-state 2.1)***
Annie: no, no. ***(Sub-state 1.2)***
Ronnie: what are you talking about?
Ben: I am talking about the content that is presented to you
[Ronnie taps on the table to draw attention. He then whispers something to Lucy who looks pissed off]
Ronnie: so every e-learning initiative, everytime the website and this is a very important website
Ben: yes. [Nods his head as well when saying this] ***(Sub-state 1.1 x 2, provides verbal and non- verbal evidences)***
Hazel: because Charles's presentation started of by saying what makes a good website is different to what makes a good xml dialogue.
Ronnie: Yes. This is the present situation. What I mean is it, is it, our final goal in the philosophy of this [laughs] design for all, is that we should consider that it is too expensive, it is too difficult, it is too time consuming to produce websites for blind people only ***(Sub-state 1.1)***
[Jonathan, Lucy, Ben nod their head] ***(Sub-state 1.1 x 3 people provides evidences)***
Charlotte: uh-huh. ***(Sub-state 1.1)***
[Elsie is sitting looking bored. She seems to have a cold]
Charles: I think the advantage of using xml to tag up your e-learning content, and tagging the content in such a way to produce separate chains of output. Um, the project output could generate voice xml output. It is tagged in such a way that you have a very rich structure and you can generate many kinds of output. That is the advantage of using voice xml.
Ronnie: yeah. ***(Sub-state 1.1)***
Ben: that is content for all
[Annie says something to Christopher. Cannot hear what was said]
Ronnie: yeah. If you put your hands on a website, the system should be that intelligent that it will automatically makes it accessible for blind users needs. ***(Sub-state 1.1)***
Ben: if the content on the website is, has a rich structure and it is not just in html, but there is also file or database behind it, which holds the content of the database in a very rich way. Um, it is what we call single source You have one source and several output forms
[Hazel, Kenneth, Jonathan and Annie nod their head] ***(Sub-state 1.1 x 4 people provides evidences)***
Ben: and then it is not only useful for blind people, it can be used for any purpose from then.
[Annie says something to Christopher again. Cannot hear what is said. She makes eye contact with him]
[Annie is siting with her hand on her face]
Ronnie: This is an advantage of course, yes, but it is a bit difficult to understand. I guess it's because I am not an expert. ***(Sub-state 1.1)***
Lucy: So, when you take an e-learning, which exists, shall you have to re-structure certain files?
Ben: you would have to restructure the entire website and take any content from it. First you have to define which structure you are going to use, and this structure has to be able to, must enable voice xml, it must be rich enough. It would have to convert everything that is on this site to that structure. ***(Sub-state 1.1)***
[Jonathan, Annie, Lucy and Hazel nod their head] ***(Sub-state 1.1 x 4 people provides evidences)***
Lucy: So, it will be sequential, it is another type of sequence editor, shorter probably [Lucy asks a question, looking at Hazel]
[Can hear Annie still talking to Christopher. Cannot hear what is being said. They both have a smile on their face]
Hazel: yes, yes. ***(Sub-state 1.1)***
Charles: an advantage if you have this list is a more general advantage could be surfing on a website could be, will be faster
Hazel: uh-huh. ***(Sub-state 1.1)***
Charles: if you want to book like an example we had yesterday, to buy groceries through the internet, if it now takes you 30 minutes, it might take you a lot shorter. I am afraid it will not be faster for every application. It will be faster for booking a train ticket Just say starting day, end date and so on. It can be a bit slower for groceries
Hazel: right, ok ***(Sub-state 1.1)***
Charles: because you have lists of possibilities
[Hazel writes on the whiteboard]

Developing a plan of future work

Hazel: but actually it helps me clarify a way forward I was going to propose on this, because I have identified four parallel lines of work that I think we need to be doing. One of them is working out some examples whether we work them out as scenarios or little working examples of bits of code to demonstrate to people. So, let me start, this is line 1. When you have the technical talk tomorrow you can be thinking about this. So action line is going to be the project vision and we need to think carefully because I think we are tending to get a little bit, well I am anyway, and everyone is absolutely clear, but the advantages of voice in and the advantages of voice xml output as opposed to a screenreading output.
[Kenneth and Charles had a smile on their face when Hazel said everyone else is most probably clear]
Hazel: So I would propose that the user partner groups, I am going to call us UP's, we come up with a list which we do not need to do actual empirical user requirements, we know this, we just have to put it on paper
[Charlotte smirks in the background]
Hazel: what are all the problems [pause] on the web for visually impaired people at the moment. Right, so for example we can say quite definitively that filling in forms is extremely difficult I do not know how well Jaws 3.7 deals with it. We can check it out, but I would be ok in saying that forms are hard.
Charlotte: Forms are hard, yes. [Charlotte nods her head when saying this as well] ***(Sub-state 1.1 x 2, verbal and non-verbal evidences)***
Hazel: Forms are hard, so if the project can find a way of improving forms using voice in, that is a winner ***(Sub-state 1.1)***
[Charles nods his head] ***(Sub-state 1.1)***
Hazel: We need to come up with a list of winners where the user partners come up with the problems and then the technical partners say oh yes we can do that this way, no that is beyond the scope So I would say [pause] does someone have a diary in front of them that they can give me dates while I do this.
[Annie talks to Christopher. Cannot hear what she is saying]
Lucy: I have a diary ***(Sub-state 1.1)***
Hazel: Let's say we come up with
[Kenneth and Charlotte talk. Cannot hear what they are saying]
Hazel: a first list, we will have to re-iterate this several times by the 4th of January
Lucy: We will begin to work on this first?
Hazel: you have got tomorrow, [laughs]
Lucy: The holidays will be till the 29th
Hazel: so what is the Friday after that?
[Can still hear whispering between Charlotte and Kenneth. Cannot hear what is said]
Hazel: Next Friday, ok, so version 1 of this will be available by the 11th.
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: I think you can start discussing this – what are the problems that you are going to solve there. Now this we might iterate several times. That will then feed, making some kind of, I am going to call it some type of pre-prototype – the project demonstration, so we will need some kind of mixture of scenarios and demonstrations and then we will use these to do the user requirements, the interviews where we talk to people and flesh out how important different things are and how they really want them to work
[Kenneth nods when talking to Charlotte. He has a smile on his face. Cannot hear what was said]
Jonathan: Are we talking about the pre prototype
Hazel: yes. ***(Sub-state 1.1)***
[Annie and Jonathan nod their head] ***(Sub-state 1.1 x 2 people provides evidences)***
Jonathan: is that the portal?
Hazel: it's not even a portal, it is little bit of code, it is like what Charles showed us, but imagine that it was actually running code ***(Sub-state 2.1)***

Jonathan: like for example a lesson
Hazel: yes. And even it does not even have to be whole lesson, it can be fragments, so for example you come up to the site and it gives you a set of options in voice xml and then allows you to respond. So, it will you see what it will be like to hear some voice xml options and then do voice in. Yes, sorry [laughs] ***(Sub-state 1.1)***
Annie: yes. But in general navigation, shall it be like e-learning? Could we re-arrange our [says something cannot hear. Also, Ronnie and Ben say something, but could not hear that clearly as well]. Do you know what I mean? ***(Sub-state 1.1)***
Hazel: This is just showing people the principles
Annie: yes. ***(Sub-state 1.1)***
Hazel: Right. ***(Sub-state 1.1)***
Annie: how it
Hazel: It can be just tiny little fragments. So for example, imagine
Annie: yes we understood. We were wondering that the scenario part we could deliver it, I do not know, I cannot say a date now, but sooner, I mean March, in our next meeting we could show ***(Sub-state 1.1) verbal and non-verbal)***
Hazel: ok I am working up to a work plan ***(Sub-state 1.1)***
Annie: yes. [Nods her head as well] ***(Sub-state 1.1 x 2 evidences,)***
Hazel: because then what I would like to, infact that is a good point, what I would like to say is that I think
[Can hear some people having their own conversations]
Hazel: within the group if we discuss this back and forth by e-mail.
[Annie and Christopher nod their heads] ***(Sub-state 1.1 x 2 evidences)***
Hazel: So, by the time we have our meeting in March, we should have it all, all ready. I do not mean anything highly integrated, because when we sit and do an interview with somebody, it might be we ask them a few questions and then we say try this little bit and we ask them some more questions, and then we say try this little bit, so it can be very fragmentary
Annie: yes. ***(Sub-state 1.1)***
Hazel: so then on, from March for about a month, we can really do serious testing with people. So I will actually, um, work out some more precise dates and circulate this. For that is one line of activity that I think will be going on and we can plan that, I think all the way through June.
[Elsie and Lucy nod their head] ***(Sub-state 1.1 x 2 evidences)***
Hazel: Because basically if we are getting all the fragments ready and the ideas ready for our meeting in March. Then from March till about the end of April we will need to interview people, May we will need to collect the data and write up the report and make recommendations. In parallel with that I think everyone seems to like the idea of looking at what is it that visually impaired people actually want to do e-learning on, what are there unmet learning requirements. So I think we can, the user partners can immediately start working on a simple questionnaire, so I, partner 8 will draft a questionnaire. This is only going to be quite short, so I will actually draft that over Christmas, so that will be ready for the 4th of January. Then I again, I have a timetable here where I would like all user partners to comment and to add additions, so that we can have comments by the 11th of January. And then all user partners, I would have thought, each user partner [pause] could conduct about 12 –20 short questionnaires.
[Kenneth nods when Hazel says 12-20 questionnaires] ***(Sub-state 1.1)***
[Kenneth looks at Charlotte and then smiles]
[Annie, Christopher and Fabian say something to each other. Cannot hear what was said]
Hazel: This can be blind people you find on the street [Hazel laughs] practically. This is only going to be a 15-20 minute questionnaire. So, um let's say we take about a month for us to do that. That will take us up to mid February. So, again by our next meeting in March in Paris, we will have some preliminary results. I think we are meeting on the 11th of March or something like that on the areas of e-learning that seem most [pause] fruitful. Hopefully, that will be very useful for partner 6 in terms of looking for content we really want to use later in the project. I think we want to offer the EU some slightly extra deliverables, that they might not have been expecting from reading the report, but they will interesting and useful and show we are researching this area. In parallel with that, and this is getting a little bit more complicated
[Kenneth says something to Charlotte. Cannot hear what was said]
[Ben looks happy]
Hazel: I think we should try and undertake some evaluations of current e-learning applications by visually impaired people, using screenreaders or Braille devices. Now I do not know how easy or difficult this is going to be, because I do not know how accessible these online.
[Elsie nods her head] ***(Sub-state 1.1)***
Hazel: So, I think what we should try and do is each user partner should try and find a small number of people, perhaps people working in your organizations, who are prepared to spend 2 or 3 hours over a month period, trying out an e-learning application of their choice. So, it can be anything that they are interested in, because I think you highlighted the problem that a lot of the e-learning applications are about xml and computer things, because that is what on the web [laughs]. Have you got a blind programmer at the moment?
Desmond: yes. ***(Sub-state 1.1)***
Hazel: ok. Participant number [laughs] ***(Sub-state 1.1)***
[Can hear Desmond and Charlotte laugh as well]
Hazel: number one. So I again will come up with a general protocol for how this could happen. I will do that by the 11th of January and then I would like comments from everybody on whether this seems feasible. By protocol I mean it will be something like the person should try and start the course, lets call it an online course. And they should try at least two or three things to progress in the course. I mean if it turns out to be inaccessible, then obviously report that it was not accessible with their screenreader, and then try something else. But each time they have a session, we will have a little set of questions about what accessibility problems did you find, how slow was it, how tedious was it
[Charlotte nods when Hazel talks about tediousness] ***(Sub-state 1.1)***
Hazel: how interesting, did you feel you learnt anything, I do not know, I might need some help [laughs] in generating a few questions so that they can kind of keep a diary of their experiences
Charlotte: uh-huh. ***(Sub-state 1.1)***
Hazel: So I will be asking people, I will develop the protocol and then ask people for their volunteers and what areas they might be looking at. It might be a bit silly if we all had people doing xml tutorials, it would be nice if we try and find some different content area. So, that is a third line, and I also outline something in the timetable for reporting, perhaps again some preliminary findings in Pairs.
[Annie says something to Christopher. Cannot hear what is said]
Hazel: But I think this will probably go on. I think this will take longer. [Pause] Um, so again, this will be probably take longer
Lucy: Would you mind to transform the 11th of March to 18th March
Hazel: Certainly. Is that when we are meeting? ***(Sub-state 1.1)***
Lucy: yes. ***(Sub-state 1.1)***
Hazel: right, sorry. I will write this all up and put it up on the ftp site and I will make sure that the dates really work. And then the next thing, so then this, no I have done that, no that is part of the vision, now I have lost the vision because I cannot remember what I thought ***(Sub-state 1.1)***
[Laughter]
Hazel: ok, I think the other thing that is concerning me is that, um [pause] understanding screenreaders and voice xml. Clearly partners 1 and 2 has expressed the need for understanding more about how screenreaders work and how it is going to interact with, with the project application.
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: I think I would like to propose that I, I realize that it is very naughty of me to propose people who have already left work [laughter]
[Laughter from other team members as well]
Hazel: but it seems to me that partner 6 has a lot of technical knowledge about screenreaders. Maybe partner 3 can also support this
[Kenneth nods his head] ***(Sub-state 1.1)***
Hazel: but I think partners 1 and 2 need to aciculate what they need to know.
[Annie nods her head] ***(Sub-state 1.1)***
[Annie says something to Christopher]
Hazel: I will make some action points of, maybe you want to produce a set of questions [writing something on the board]. We need a way of progressing that, so that you are learning more about that. And then, actually there are five things, the final thing is understanding more [pause] about authoring tools.
Charlotte: I tend to look at the accessibility of web authoring tools
Hazel: yep. ***(Sub-state 1.1)***
Charlotte: yeah. But we have not really done much on it yet ***(Sub-state 1.1)***

Hazel: Right. ***(Sub-state 1.1)***
Charlotte: We have started on it
Hazel: and partners 5 and 6 do you have any, maybe that is one that partners 3 and 8 can do
Kenneth: uh-huh. ***(Sub-state 1.1)***
Charlotte: um, yeah. ***(Sub-state 1.1)***
Hazel: because that is something I can set Mary
Kenneth: uh-huh. ***(Sub-state 1.1)***
Hazel: I am quite happy for us to buy
Kenneth: uh-huh. ***(Sub-state 1.1***
Hazel: or to get the demo version
Kenneth: yes. ***(Sub-state 1.1)***
Hazel: and to start talking about what they do
Charlotte: uh-huh. [Nods her head enthusiastically] ***(Sub-state 1.1 x 2 evidences, verbal and non-verbal)***
Hazel: and run them with Jaws
Kenneth. yes. [nods his head] ***(Sub-state 1.1 x 2 evidences, verbal and non-verbal)***
Hazel: yep, ok. So I will, I ran out of steam there, but partners 8 and 3 will take some action there, and I will set some deadlines ***(Sub-state 1.1)***
Kenneth: uh-huh. ***(Sub-state 1.1)***
[Jonathan nods his head] ***(Sub-state 1.1)***
Hazel: So, I will produce by the end of the week, a detailed timeline with lots of little deadlines. That is the way I would rather do it, rather than try and report every 15 days. I have a deadline every week of something happening
[Laughter – Hazel, Charlotte and Lucy]
Hazel: so, I will be saying right have you done this action comment on this, right. So it will be more driven by the little tasks rather than the period of time. So I will produce a timeline, if I do not put it on the ftp site before Christmas, I will put it on the ftp site before the New Year.
[Annie asks Jonathan something, pointing at the whiteboard Hazel was writing on]
Hazel: and I will send an e-mail saying everyone must look this, because there will be deadlines for everybody. But do you feel with those five parallel actions w are beginning to get a [pause]
Ronnie: I think it's in the right direction. ***(Sub-state 1.1)***
Hazel: yes, I also am beginning to think, although I am not the going to be very involved in this one, I will be watching it, but I think it is very important because this is where we need to develop the specific vision of what the project is going to offer to people. Well they are all very important in different ways, and if you solve of those problems that is fine, but it would give you a new set. Let's take some problems that visually impaired people are going to immediately relate too. I think the forms one is a good one, the blind people I know if I said to them, look here is a really good way that is going to make forms easier for you to use on the web, they are going to say great, yes I will have that. ***(Sub-state 1.1)***
Charlotte: a lot of problems are design related, in web problems. So, I mean we need to make that clear.
Hazel: yeah, ok. ***(Sub-state 1.1)***
Charlotte: you know, something can be a problem on one site, that is not on another
Hazel: yep, right, ok. ***(Sub-state 1.1)***
Kenneth: uh-huh. ***(Sub-state 1.1)***
[Pause]
Hazel: But would it not be the case, that if a site has actually got a poor design on something, um, will the project still then be able to present it better?
Kenneth: Well, yes, the question then is, if you have to recast that information to the project anyhow, could you recast it a better design ***(Sub-state 1.1)***
Hazel: uh, yeah. [not a convincing sounding yeah] ***(Sub-state 1.1)***
Kenneth: that is part of the question
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: how much does it involve design, how much is it inherit in the web technology
Hazel: yes, yes. It's a bit like the tables the way that IBM screenreader, homepage recasts the table ***(Sub-state 1.1)***
Kenneth: uh-huh. ***(Sub-state 1.1)***
Hazel: That by reorganizing it, it makes it better to navigate than more logical
Charlotte: and the tables, a good mark up on the tables
Hazel: um
Charlotte: and if it makes a table easier, than poor mark up
Hazel: yes. ***(Sub-state 1.1)***
Charlotte: in a table, then
Hazel: the mark up isn't
Charlotte: yeah ***(Sub-state 1.1)***
Hazel: yeah. ***(Sub-state 1.1)***
Kenneth: in that first bit on problems on the web
Hazel: yeah. ***(Sub-state 1.1)***
Kenneth: if you ask all user partners to do that, then we are going to come up with the heart, which is going to be similar for each of the partners
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: Do we need to actually get one partner to do the first cut and then ask
Hazel: yes that right. ***(Sub-state 1.1)***
Kenneth: and then ask everyone to comment
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: and then add bits that the first one has forgotten
Hazel: any volunteers?
[Laughter]
Hazel: partner 3 first cut?
[Kenneth and Charlotte talk o each other]
Kenneth: yes. ***(Sub-state 1.1)***
Charlotte: Yes. ***(Sub-state 1.1)***
Hazel: we will chip in as well. Right that will be good Yes I think you are right actually ***(Sub-state 1.1)***
Kenneth: the safety is that they are known
Hazel: yes. ***(Sub-state 1.1)***
Kenneth: it is just a matter of dredge up, right, yes
[Pause]
Ben: I do not know how this matches with the tasks and all ***(Sub-state 3.1)***
Hazel: that is very good, because I did not have time to look at that, so I just invented this [laughs] good, good, because that made me quite worried actually, because I do not think I have dealt with some of the later tasks
Kenneth: Uh-huh. ***(Sub-state 1.1)***
Hazel: and to sit down and map those tasks out. But I am very pleased to hear that [laughs]
Jonathan: the tasks are very flexible, I mean
Hazel: yes. ***(Sub-state 1.1)***
Jonathan: the tasks for the project
Hazel: I was going to, if necessary push things a little bit, but its important when we go to the review we can see we did this for this task and that for that task, but I think that will work out
Jonathan: for the deliverable?
Hazel: yes, in fact the deliverables ***(Sub-state 1.1)***
Jonathan: the design, the specification
Hazel: The deliverables are not a problem. I think you will probably find that I am going to add another deliverable, rather than, which we can have as an internal report. Because we have what the, the, maybe I am wrong, anyway. Ok that is all. Thanks. I have to write that all down now again

[Laughter]
[Small groups having their own conversations]

Next meeting date

Hazel: Are there other issues people would like to address
[Pause]
Ben: can we have a definite meeting date for next
Hazel: I think its March
Lucy: I think its 18th and 19th of March
Ronnie: on the 20th there is a Madrid conference
Hazel: I have the 11th and 12th, I have another meeting, in fact several people in this room have a meeting in London on 18th and 19th of March ***(Sub-state 2.1)***
Lucy: ah 18th?
Hazel: yes that's right, well ***(Sub-state 1.1)***
[Charlotte says something to Kenneth]
[People engaged in their own conversations]
Lucy: Do you want it Thursday or Friday?
Hazel: Thursday or Friday. I think it should be two days ***(Sub-state 2.1)***
Kenneth: uh-huh. ***(Sub-state 1.2)***
Lucy: then the 14th and 15th
Hazel: 14th and 15th what about 14th and 15th? That is ok with me. What about everyone else? ***(Sub-state 1.1)***
[People having their own conversations. cannot hear what they are saying]
Hazel: I will send an email to the whole consortium telling them of those dates
Jonathan: ok. ***(Sub-state 1.1)***
Hazel: so Jack, ok, ok, shall we declare the meeting closed for today, and then the technical partners can have fun tomorrow morning
[Laughter]
Meeting closed at 3.50

MESSAGE 1
From: Jonathan
To: Project team
Subject: new authoring tool accessibility guidelines
Date: Saturday, December 22, 2001 1:59 AM

Hello everybody,
I send you the link about the last W3C document: Authoring Tool Accessibility Guidelines "Wombat":
http://www.w3.org/TR/ATAG-wombat/ which is a W3C Working Draft 21 December 2001

Merry Christmas everybody,
Jonathan

MESSAGE 2
From: Hazel
To: Project team
Subject: Next meeting and workplan for WP1
Date: Saturday, December 22, 2001 2:00 AM

Dear Friends,

I hope you all had a safe trip home from London.

I attach here a detailed wokplan for the next three months on work for WP1. It is particularly important that partners 6 and and 4 study this, as they were not present at the meeting when this workplan was prepared, and there is work for them in the workplan. Will all partners please send me any comments they have about the workplan by the 04/01/02, and would partners 6 and 4 please send positive confirmation that they agree with the work assigned to them in their absence by that date.

Over the Christmas break I will develop the plan further for the second three months of the year and particularly for the development of the pre-prototype demonstrators which will be produced and used in the main user requirements study.

I will also write up my presentation which I gave at the London meeting and complete the user requirements document I've been working on. I will distribute that immediately on return from the Christmas break.

Please note that the next meeting is now scheduled for Paris for the 14th and 15th March (partners may have the 11 and 12 March in their diaries, those dates are no longer valid).

Partner 8 is closing for Christmas in an hour and will not be open until 2nd January 2002. Therefore I will not be in touch again until then.

I wish you all a very Merry Christmas and Happy New Year and look forward to working hard and productively on the project in 2002.

Hazel

MESSAGE 3
From: Jack
To: Project team
Subject: Project Presentation
Date: Thursday, December 27, 2001 5:33 PM

Dear Colleagues,

as was explained in London, we have to send tomorrow the first deliverable of the project. It is the "Project Presentation".

In this email you will find a "zipped" file with all the html files and figures of the deliverable (I remind you that this deliverable should be via the Web).

Please, take a look to this improved version and send your comments. This zipped file is also at the ftp site in the new folder "Project-presentation".
Be aware that there has been a change in the way to reach the ftp site via your browser. Follow this steps:
1.- Open the address ftp://ftp.xxx.xx
2.- Click on your Browser option "File" and then the "Open session as..."
3.- You will be asked for the username and password.

Best regards,
Jack
(See attached file: Project-presentation zip)

MESSAGE 4
From: Desmond
To: Project team
Subject: AW: Next meeting and workplan for WP1
Date: Monday, January 07, 2002 2:03 PM

Hi Hazel,
I hope you had pleasant christmas-days and I wish you a very happy new year. In general we agree with the work assigned to partner 6 in your workplan. But we think the amount of days between L2/A5 (Administer questionnaire to at least 15 participants per partner, 15/02/02), L2/A6 (Translate answers into English] and send to partner 8, 01/03/02) and L2/A6 (Collate data and prepare summary for presentation at the project meeting meeting in Paris, 14/03/02) is too small, and the date for L3/A3 is too early for us. So how about shifting the date for the Paris-Meeting to April, 3rd and 4th and giving our UGPs more time
for their activities. Could there be another solution? What do the other partners think about it?
Yours sincerely
Desmond

Message 5
From: Hazel
To: Project team
Subject: WP1 work
Date: Tuesday, January 08, 2002 3:55 PM

Dear Friends,

I've had food poisoning for a couple of days, so I'm behind with the L2/A1, but I will complete it tomorrow and circulate it.

I've also had some good comments on the timetable for WP1 - I will collate those this afternoon and report back to the entire group.

Cheers from a very grey and damp London,

Hazel

MESSAGE 6
From: Thomas
To: Project team
Date: Friday, January 11, 2002 7:40 PM

like Charlotte and partner 3, I worked on the problems encountered by visually mpaired people on web sites. So I send you my report and conclusions Sorry it's a french version , I'll translate this document later. I add a second document (e-learning) concerning my first impression about e-learning. And i have just a question about the e-learning portal : should we prefer to create our own content or should we just index others sites?
Best regards
Thomas

MESSAGE 7
From: Hazel
To: Project team
Subject: WP1: Revised timetable
Date: Friday, January 11, 2002 9:16 PM

Dear Friends,

I have received some comments on the proposed timetable for the WP1 work. I have therefore amended the timetable and attach a new version here. I've also made a directory in the project ftp site called WP1 and i've placed the new timetable there. The amendments are summarized thus:

As I've only just completed the drafts of the questionnaire on unmet learning needs and protocol for the evaluation of current elearning applications (see my other email), I've extended the deadline for comments until the 18/01. If people feel a week is not enough time to comment, please let me know.

Desemond felt that the times between L2/A5 and L2/A7 was too tight – the time to collect data from 15 people per partner on the questionnaire This seemed reasonable. So I've asked for partners to collect data from only 5 people by the original deadline, so we will have some information to discuss in Paris and then a further 10 people after that.

Annie asked for another action in Line 5. I've added that, but I wasn't sure why this included questions on voice navigation, as that did not seem so relevant to the development of the authoring tool, being an end-user issue. Annie - do you want me to add an action about generating a set of questions about voice navigation in Line 4 - that's where it seems to fit best.

I have also added an action to Line 1 to develop a pedagogic/cognitive framework of e-learning for visually disabled people (primarily an action for partner 8), as I am convinced we need to situate our project work within such a framework.

When I distributed the timetable before Christmas I particularly asked partners 6 and 4 to look at it and let me know, even if they had no comments, as they were not present at the meeting in London when we developed the framework for the timetable. I have heard from partner 6, but not from partner 4 - could you please let me know that you are receiving these emails and the documents.

Best regards to all,
Hazel

MESSAGE 8
From: Hazel
To: Project team
Subject: Project: WP1 Questionnaire
Date: Friday, January 11, 2002 9:16 PM

Dear Friends,

Here is a first draft of a questionnaire on unmet learning needs of visually impaired people. I have also placed it on the ftp site in a new directory called WP1. It definitely needs some more work, so I welcome your comments and suggestions. I have imagined that this questionnaire could be distributed by email to some participants, given verbally, printed in large print, recorded onto audio tape ... etc So I have tried to keep the questions very clear and simple and the format very straightforward.

I'm still working on the protocol for the study of current elearning applications, I will distribute that on Monday morning.

Cheers,
Hazel

MESSAGE 9
From: Hazel
To: Project team
Subject: WP1 material
Date: Monday, January 14, 2002 5:11 PM

Dear Friends,

I have placed in the WP1 directory on the server:
(a) notes on my presentation to the meeting in London on the work partner 8 has been doing
(b) an encyclopedia entry I have written about computer access for visually impaired people which might be of some interest as background material. I did send this to Jack for distribution to the consortium in November, but I'm not sure whether everyone got it. It's in a sub-directory called encyclopedia, as the graphics files are separate from the text.

Cheers,
Hazel

MESSAGE 10
From: Charles
To: Project team
Subject: Re: Project: WP1 Questionnaire
Date: Tuesday, January 15, 2002 3:08 PM

Dear Hazel,

The questionnaire assumes that e-learning is something for individuals taking certain courses, whereas the biggest 'consumers' of e-learning will probably be companies who want to train their employees - some of whom may be visually impaired. This is not to say that the project should cater for the needs of companies, but we can't ignore this market.

When I come to think of it, e-learning is a huge subject. Does any of the the project partners have any expertise in this?

Regards,
Charles

MESSAGE 11
From: Annie
To: Project team
Subject: L4/A1 Screenreader functionality: set of questions
Date: Tuesday, January 15, 2002 5:19 PM

Dear friends,
excuse my lateness on the delivery of the set of questions about screenreading functionality that was schedule for the 11th of January. I left a heating pad on my sofa and it caught on fire during the night. Fortunately no one was injured. Don't think we can start to talk about the curse of the project but you never know :-) I enclose the document with the set of questions in table form. You can answer the questions on the same document and e-mail it back to us. Hope you find it easier this way.

Hazel, please make sure that all the partners involved in this task receive this questionare. Thank you.

Happy new year to everyone!
Annie

MESSAGE 12
From: Jack
To: Project team
Subject: Minutes. Amendment
Date: Wednesday, January 16, 2002 10:50 AM

Dear colleagues,

we have included in the ftp site the Minutes for the Meeting in London. You will find it in the following folder: WP7/Meetings

As was decided in London, we are changing the folder structure in the ftp site, in order to have a more intuitive and easy system. We will let you know this new distribution of files.

Please, take a look to the Minutes file and send any correction or comment.
Important:
I confirm that I have received the signed copies of the amendment from Partner 9, Partner 6 and Partner 8.
Please send your copies urgently. It is urgent to send it to Brussels; for example, the official change between University of H and Partner 8 depends on the signature of the amendment.

Best regards,
Jack

MESSAGE 13
From: Partner 4
To: Project team
Cc: Project consortium
Subject: Comments on the questionnaire on unmet learning needs of visually impaired people
Date: Friday, January 18, 2002 9:49 AM

Ref: Comeu 1130

Dear Hazel,

Thank you for sending the questionnaire on unmet learning needs of visually impaired people for comments.

I had a look at it and have some suggestions for you. I would like to apologize for the conciseness and some inaccuracy of the text, due to usual hurry.

I hope I did something useful. If not, ignore it.

Kind regards.
Ronnie

COMMENTS and SUGGESTIONS

1. The questionnaire is very wide and well structured.

2. Open answers should possibly be avoided, e.g. whys in questions 1 and 2 of the first section, and question 6 in the second section. The respondents would preferably be requested to choose among a predetermined number of answers. For example, in question 1, instead of asking "Why was this?" one could offer a list of options:

a) Because I found it particularly interesting;
b) Because I was good at it;

c) Because I had at my disposal appropriate learning materials;
d) Because of the teacher's charisma;
e) Because a friend of mine was ready to study with me;
f) Other.
Obviously this is only a very primitive sample. A similar list could be provided when referring to the motivation in question 6.

3. Question 10 appears to be a bit generic, thus too easy or too difficult to be answered. Maybe we could include a graduated scale like:
a) very much;
b) much;
c) fairly;
d) sufficiently;
e) not essentially;
f) not at all

4. After question 11 we could include an additional question: "12. If yes, from whom?:
a) official information;
b) mass-media;
c) advertising;
d) teachers;
e) friends/colleagues;
f) others"

5. Also question 13 appears to be dangerously open. We could have a lot of lengthy descriptions difficult to classify.

6. Regarding question 20: why making reference to self categorization instead of legal registration? Despite the possible differentiation in the various countries, the latter should probably be more appropriate.

MESSAGE 14
From: Thomas
Date: 18 January 2002 19:29
To: Project team
Subject: (No subject)

Dear Hazel I'm going to be very brief because i think your questionnaire is very clear and well conceived.
I have only one suggestion about the questions 12 and 13. To my point of view it would be better to develop them in order to know for example what kind of support people are looking for : scholarly support, sites for pure education, or encyclopedias. Do they consider and prefer that e-learning could one day fill the place of "ordinary school"?
But that's all for me, it was perfect.
Best regards
Thomas

MESSAGE 15
From: Christopher
To: Project team
Subject: Minute of the technical meeting in December
Date: Monday, January 21, 2002 6:27 PM

To all the technical partners,

here is the minute of the technical meeting that the technical partners had in December. Do send me the comments you have and any amendment that needs to be made.

Regards,
Christopher

MESSAGE 16
From: Charlotte
To: Project team
Subject: problems on websites
Date: Monday, January 21, 2002 6:27 PM

Hi All

Please find attached a document on the problems visually impaired people face when using websites. I will also put this on the server.

Regards
Charlotte

MESSAGE 17
From: Annie
To: Project team
Subject: Minute of the technical meeting in December
Date: Monday, January 21, 2002 6:27 PM

To all the technical partners,
here is the minute of the technical meeting that the technical partners had in December. Do send me the comments you have and any amendment that needs to be made.
Regards,
Annie

MESSAGE 18
From: Desmond
To: Project team
Subject: WG: L4/A1 Screenreader functionality: set of questions
Date: Monday, January 21, 2002 6:27 PM

Dear Team members :-),
attached you can find my answers to Annies questions concerning Jaws.
Best Regards

Desmond

MESSAGE 19
From: Annie
To: Project team
Subject: RV: Minute of the technical meeting in December
Date: Monday, January 21, 2002 6:27 PM

I believe that some partners had troubles with my previous email so I'll email it again.

MESSAGE 20
From: Hazel
To: Project team
Subject: WP1: Questionnaire and evaluation study protocol
Date: Tuesday, January 22, 2002 10:38 AM

Dear Friends,

Thank you to the various people who made comments on the Unmet needs questionnaire. I will incorporate the changes and circulate a revised copy by the end of the week. We will then be ready to start collecting data with that questionnaire!

Here is the protocol for the evaluation of current e-learning systems, including drafts of questionnaires. Please comment on this by the middle of next week. (30th). Please also let me know if you have found any volunteers to participate in this study.

Best regards,
Hazel
MESSAGE 21
From: Jonathon
To: Project team
Subject: Work Package 6: STANDARDIZATION, DISSEMINATION AND EXPLOITATION
Date: Tuesday, January 29, 2002 6:28 PM

Dear friends,

This message is for launching the WP6. All the partner participate in this task with the following distribution of man/month:

Partner 1 20 man/month

Partner 2 6 man/month

Partner 3 6 man/month

Partner 4 6 man/month

Partner 5

Partner 6 6 man/month

Partner 7 20 man/month

Partner 8 2 man/month

Partner 9 2 man/month

Partner 1 is the leader of the WP 6.

The first deliverable, which must be finished by March 2002, is the Dissemination and Use Plan.

The dissemination and use plan is a very important deliverable. It will be examined closely by the Project Officer. If he is not satisfied that the consortium has developed adequate plans to disseminate the results of their work, and has concrete plans for exploitation of the product, service etc. which the project is developing, he will initiate a strategic review which could lead to the early termination of the project.

This deliverable should describe plans for the dissemination of knowledge gained during the work, and the exploitation plans of the results for thE consortium as a whole, or for individual participants or groups of participants. It should be expressed as much as possible in concrete terms, for example the dissemination strategies, the target groups and the strategic impact of the project in terms of improvement of competitiveness or creation of market opportunities for the participants.

I am sending you attached a questionnaire which should be completed and returned by the 8th of february. Please, do not forget to complete it as well as it deserves. And please, should you have any comment, do not hesitate to contact me.

My best regards,
Jonathon
(See attached file: INDIVIDUAL QUESTIONNAIRE FOR THE DISSEMINATION AND USE PLAN.doc)

MESSAGE 22
From: Hazel
To: Project team
Subject: Dreamweaver
Date: Tuesday, January 29, 2002 7:16 PM

Dear Partners,

In the course of her research, Mary came across the following interesting information about the accessibility kit extension available for Dreamweaver. This is about making the pages produced by Dreamweaver accessible, not about making Dreamweaver itself accessible to visually impaired developers. Nonetheless, if you are not familiar with it, it might be interesting.

http://www.macromedia.com/macromedia/accessibility/tools/accessibility_kit.html

Cheers to all,
Hazel

MESSAGE 23
From: Charles
To: Project team
Cc: Sajal
Subject: Accessibility problems & voice solutions
Date: Friday, February 01, 2002 4:59 PM

Dear partners,

I am drafting a document on the solutions that VoiceXML and ConPalabras could provide to the problems of visually impaired persons accessing the web. The first version is now being reviewed by our technical partners in Spain. The main difficulty in writing this document is that action line 1 of our time table has so far mainly concentrated on WHY web access can be difficult instead of WHAT actions are difficult. Some suggestions were made during our meeting in London: filling in forms, searching, navigation and getting help. In order to complete this list (and to think of solutions) it is important to make abstraction of the browser/webpage as a GUI (which may have a spoken equivalent, provided by a screenreader) and concentrate on the functionality that we expect from web applications. Most of the problems that visually impaired persons may have on web sites are not relevant to voice applications (i.e. pure voice user interfaces with no graphical equivalent). [This raises the question if anyone in the consortium has expertise in voice user interfaces.] However, if we want to add voice to web pages (e.g. by means of the JavaScript functions supported by ConPalabras), it is still important that these pages conform to the WCAG
guidelines, because adding voice doesn't solve the problem of missing ALT-text in images, poorly worded links, etc. This second point also raises the question what exactly the PROJECT certificate will add that goes beyond the W3C WAI guidelines. If the certificate is about accessibility for the visually impaired (description task 3.6), does this mean that it won't be as strict as the W3C WAI guidelines, which are also about accessibility for people with other disabilities? If the certificate is about accessibility for voice navigation, does this mean that it will check for proprietary tags that are only supported by ConPalabras?
Please, send me your comments.

Best regards,
Charles

MESSAGE 24
From: Hazel
To: Project team
Subject: Protocol for the evaluation of current elearning applications
Date: Wednesday, February 06, 2002 7:07 PM

Dear Friends,

Here is the final protocol for the evaluation of current elearning applications. I didn't receive any comments from partners about this, but Mary had some excellent ideas, so it has been thoroughly overhauled.

I have only received a list of participants who will participate in this study from Thomas. His range of participants looks very good. Could other partners please let me know as soon as possible how they are going with the recruitment for this evaluation.

Best regards,
Hazel

MESSAGE 25
From: Hazel
To: Desmond
Cc: Project team
Subject: Re: AW: Protocol for the evaluation of current elearning applications
Date: Thursday, February 07, 2002 3:02 PM

Hi Desmond,

Yes, I received these. Because these were for the unmet learning needs questionnaire I didn't realize that these people are also going to do the current elearning applications evaluation. If they are, that's fine. I don't need the names. I will ask Mary to prepare the two pieces of text you suggest, as they are very useful to have.

Many thanks,

Hazel

Desmond wrote:

> Dear Hazel,
> on January, 30th I sent you my comments and first answers from 5 partcipants. Didn?t you receive them?
> For this case, I send them again. Do you need the names of the participants?
> Best regards
> Desmond
>
> On 30/01/2002 I wrote:
> Dear Hazel,
> please find attached your filled out draft of the 1st version questionaire we have tested with 5 participants. As a result of this we suggest the following for your protocol from 22/01/2002:
> 1. Because our participants were intersted in e-learning but often didn?t really know what it can be we suggest to give a short description e-learning and its advantages.
> 2. It would be practical to describe a brief e-learning-scenario to give outstanding persons or new participants insight into the possibilities of e-learning. This was often asked by our participants.
> Best regards
> Desmond
>

>Name: Questionnaire on unmet learning needs of visually impaired people answers partner 6 30.01.2002.zip
>Questionnaire on unmet learning needs of visually impaired people answers partner 6 30.01.2002.zip

> Type: Zip Compressed Data (application/x-zip-compressed)
> Encoding: base64
> Download Status: Not downloaded with message

MESSAGE 26
From: Jonathon
To: Project team
Subject: Work Package 6: STANDARDIZATION, DISSEMINATION AND EXPLOITATION
Date: Thursday, February 07, 2002 3:02 PM

Dear friends,

This message is for launching the WP6. All the partner participate in this task with the following distribution of man/month:

Partner 1	20 man/month
Partner 2	6 man/month
Partner 3	6 man/month
Partner 4	6 man/month
Partner 5	
Partner 6	6 man/month
Partner 7	20 man/month
Partner 8	2 man/month
Partner 9	2 man/month

Partner 1 is the leader of the WP 6.

The first deliverable, which must be finished by March 2002, is the Dissemination and Use Plan.

The dissemination and use plan is a very important deliverable. It will be examined closely by the Project Officer. If he is not satisfied that the consortium has developed adequate plans to disseminate the results of their work, and has concrete plans for exploitation of the product, service etc. which the project is developing, he will initiate a strategic review which could lead to the early termination of the project.

This deliverable should describe plans for the dissemination of knowledge gained during the work, and the exploitation plans of the results for the consortium as a whole, or for individual participants or groups of participants. It should be expressed as much as possible in concrete terms, for example the dissemination strategies, the target groups and the strategic impact of the project in terms of improvement of competitiveness or creation of market opportunities for the participants.

I am sending you attached a questionnaire which should be completed and returned by the 8th of february. Please, do not forget to complete it as well as it deserves. And please, should you have any comment, do not
hesitate to contact me.

My best regards,
Jonathan
(See attached file: INDIVIDUAL QUESTIONNAIRE FOR THE DISSEMINATION AND USE PLAN.doc)

MESSAGE 27
From: Erin
To: Project team
Subject: online learning 2002 europe conference and expo - London - March 2002
Date: Tuesday, February 12, 2002 7:42 PM

Dear partners

If you would like further information on this conference please visit www.vnuonlinelearning.co.uk
The conference programme covers many areas that may be of great benefit for PROJECT.

Best regards
Erin

MESSAGE 28
From: Thomas
Date: 14 February 2002 18:32
To: Project team
Copy: Sajal
Subject: ccessibility problems & voice solutions

Hi everybody,
Sorry for my late.
Here are my conclusions and comments about finding possible solutions to the accessibility problems with the project vision and Vxml.I've no technical solutions because I'm not relly a technician. I made a survey in a french institute for visually impaired children. We worked on problems and difficulties they often encoutered with the web and we tried to evaluate possible contribution of voice applications.It's not really different of the suggestions made during our meeting in London but it give us indications on user's needs.
-First, we try to create an e-mail address (http://xxx.xxx.hotmail.passport.com/cgi-bin/login?_lang=EN&id=2&fs=1&cb=_lang!%3dEN&ct=1013703772) and we were confronted in filling in forms. Teenagers thought that it would be great to be helped by voice.
-Second, we were interested in studying the human immune system and particularly the allergy,(http://www.infoscience.fr/dossier/allergies/allergies1.html) but it contains graphical elements specific to this discipline : tables, graphs, plans which are absolutely inaccessible. Vxml could be an alternative to comment all those elements.
-then, we made a search on jean-baptiste Poquelin alias Molière with google, one of the most accessible search engine (http://www.google.fr/search?q=moli%E8re&hl=fr&btnG=Recherche+Google&meta=) and we had 87400 answers. So we started to visit numerous websit! es in order to find informations and find an accessible website. Voice could help us in finding the information directly and to tell us if a site is accessible or not.
-then we had to navigate to find what we were looking for; Is it Moliere's plays, biographies, studies ...? The menu wasn't really clear, there were too much links and there was no way to get help. (So as tartuffe who dares to take on the subject of religious hypocrisy, "my teenagers" dare to take on the subject of "web hypocrisy"). Voicexml could (may be) provide enhancements to navigation and getting help when we think we are in an impasse.

I 'd like to add that I find the work of Charles very interesting and questions really relevant.
It will therefore be extremely important to concentrate on what Charles made to progress in our work.
Best regards
Thomas

MESSAGE 29
From: Lucy
To: Project team
Subject: Tr: PROJECT Meeting in Paris, March 14-16, 2002
Date: Friday, February 15, 2002 8:42 AM

-----Message d'origine-----
De : Lucy
À : Project team
Date : jeudi 14 février 2002 16:11
Objet : PROJECT Meeting in Paris, March 14-16, 2002

Very Urgent message

Dear Partners,

For booking the necessary number of rooms in Paris, for the participants of the above meeting, we need to have your names and to know your date of arrival in Paris and date of departure.

I enclose copy of my today's message attention Jack (giving name and address of the hotel) and I hope to know from each of you by return mail.

With my thanks and best regards.
Lucy

MESSAGE 30
From: Jack
To: Project team
Subject: Quarterly report
Date: Friday, February 15, 2002 2:04 PM

Dear partners,

As was explained in London, we have to produce the Quarterly Management Report, providing an overview of the progress made in the project during the first three months period (October, November and December).

In order to produce this document we need from each of the partners the following information (as stated by the European Commission):

i. An account of the progress made (the most important part should come from partner 8 for WP1).
ii. Resources employed.
iii. Results obtained.
iv. Deviations from the work schedule - when occurred.
v. Planned modifications to the work schedule for the next reporting period - where necessary.

Please, send us as soon as possible this information (up to 4 pages will be enough).
We will send you next week the draft version of this report including your inputs.

Best regards,
Jack

MESSAGE 31
From: Jack
To: Project team
Subject: request for a letter
Date: Friday, February 15, 2002 2:10 PM

Dear Colleagues,

we have received from the European Commission the message you will find attached.
They asked from all the partners a letter with the statement "We certify that we have not made any changes or alterations to the contract."

You can use as template the letter you already sent me a few months ago for the signature of the contract.

Please, send me by courier this letter as soon as possible.

Best regards,
Jack

----- Remitido por Jack con fecha 15/02/02 14:02

Para: Jack,

12/02/02 17:34
cc: F J
Asunto: request for a letter

Dear Project co-ordinator,

We have just notified that the official letter sent to you, in which we ask you to have all the partners sign the draft of the pending amendment, didn't request them to provide also a short letter with the following statement :

"We certify that we have not made any changes or alterations to the contract." (similarly to what was done at the time of the original contract signature).
Please send us such a letter for each partner, as it will be necessary at the time of the Commission signature.
We apologise for this omission.

Best regards,

M for F J

MESSAGE 32
From: France Dailliet <f.dailliet@xxx.asso.fr>
To: Project team
Subject: Tr: PROJECT Meeting In Paris, March 14-16 2002
Date: Monday, February 18, 2002 11:24 AM

-----Message d'origine-----
De : France Dailliet <f.dailliet@xxx.asso.fr>
À : Project team
Date : lundi 18 février 2002 10:56
Objet : Tr: Project Meeting In Paris, March 14-16 2002

>
>-----Message d'origine-----
>De : France Dailliet <f.dailliet@xxx.asso.fr>
>À : Project team
>Date : lundi 18 février 2002 09:58
>Objet : Project Meeting In Paris, March 14-16 2002
>
>
>>Dear Mr. Jack
>>Referring to your mail to Lucy concerning the above meeting in Paris, we need to know urgently the names, addresses(e-mail) and phones of the participants to this meeting.
>>
>>The deadline for us to book the rooms is February 25, so we thank you to send us this list by mail before February 21, so we can reach directly each participant.
>>
>>The price for a Single room at the Hotel Mansart is 45,73 EUR/night including breakfast.
>>
>>With our thanks and Best regards.
>>Lucy's Assistant
>>
>

MESSAGE 33
From: Jack
To: Project team
Subject: Quarterly report and letter
Date: Tuesday, February 19, 2002 11:45 PM

Dear Colleagues,

this is to remind you two URGENT issues:

1.- Send your part of the quarterly report.
Send it electronically in any format (we will format it). I remind you that this is NOT the financial report, this is the report stating the work done by you in october-november-december (progress made, resources employed, results obtained)
Remember to include work done in any WP (mainly WP1, 2, 4 or 6) where you have participated.

We should receive your info this week!!

2.- Send the letter about the amendment with the statement: "We certify that we have not made any changes or alterations to the contract." By courier to me.

Best regards,
Jack

MESSAGE 34
From: Jack
To: Project team
Subject: Quarterly Report
Date: Tuesday, February 26, 2002 1:08 AM

Dear Colleagues,

I still have not receive the quarterly report of many of the partners. Please, send it URGENTLY and remember that this quarterly report refers to october-november and december.

I am also waiting for your letters with the statement required by the Commission for the Amendment.
Please, send it as soon as posible.

Best regards,
Jack

MESSAGE 35
From: Christopher
To: Project team
Cc: Sajal, Conwayne, Geoff

Subject: To Technical Partners (Partner 2, Partner1, Partner 9, Partner 4)
Date: Wednesday, February 27, 2002 6:42 PM

Dear friends,

we are making the schedule for WP3. This work package starts the 1st of March and this are the partners involved:

Partner 2 - 56 person/month
Partner 1 - 37 person/month
Partner 9 - 22 person/month
Partner 4 - 15 person/month

We would like to have the chance to have a meeting together in Paris the evening of the 13th of March (Wednesday). We need to discuss the delivery of tasks in our package and to prepare the presentation for the following day. We could have this meeting at the dependencies of the hotel were we will be staying.

As we have previously arranged, our idea is to use a simplified version of the UML methodology, without abusing of charts to make it accessible and following each functional scenario head to tail.

We agree that this things would be required:

Context chart

Use case diagram:
Description
- Actors involved
- Preconditions
- Postconditions
- Basic flow
- Alternative flows
- Exceptions

Sequence chart:
Graphic representation of the use case diagram

Class diagram:
- Class model
- Class description (methods, attributes, etc.)
- Multiplicity (relationships between classes)

We attach a complete sample of UML for those unfamiliar with this methodology. This will help you get a better idea of how it works, anyway we will take to Paris a sample of UML applied to the project and we will be answering your questions regarding this methodology.

Talking about the schedule for WP3, we've started to assign tasks to the partners involved. This would be the initial draft:

** Partner 2 y Partner 9: Arquitecture definition.
** Partner 2 y Partner 1: Analysis and Design of the Interface
** Partner 1: Definition and development of the Components.
** Partner 4: Standards definition for the development and Components definition.
** Partner 9: Functional design (rules and validations for the dialog boxes).

We'll try to send you soon more information about the tasks.

If you have any comments feel free to email us your questions/suggestions with the confirmation of your attendance to the meeting.

Best regards,
Christopher

MESSAGE 36

From: Fabian
To: Project team
Cc: James, Jack
Subject: Quarterly Report and list of documents
Date: Wednesday, February 27, 2002 8:06 PM

Dear partners,

here you can find attached a draft version of the Quarterly Management Report

(See attached file: Quarterly Report draft.doc)

Please, send your comments as soon as possible. We need to have a definitive version tomorrow.

You will find the list of documents too. Please, check it and let us know if there is any file missing. Revise also the FTP server.

(See attached file: 3. Project-doclist.xls)

Thank you.
Best regards,
Fabian

MESSAGE 37
From: Fabian
To: Project team
Subject: Second version of the Quarterly Management Report
Date: Thursday, February 28, 2002 4:19 PM

Dear partners,

Here you can find attached the second version of the Quarterly Mangement Report draft.

You will find in it the estimation of resources needed for each partner to reach the objectives.

(See attached file: Quarterly Report draft v2.doc)

This evening, we will send the defnitive version to the Project Officer. Please, send your contribution or comments as soon as possible.

Best regards,
Fabian

MESSAGE 38
From: Jack
To: Project team
Subject: Agenda for Paris (Draft)
Date: Friday, March 01, 2002 3:29 PM

Dear Colleagues,

this is the draft agenda for the meeting in Paris (14-15 march):

-- Wednesday 13 evening: Meeting for WP3 (only Partner 2, Partner 1, Partner 9, and Partner 4)

-- Thursday 14 morning: Review of results and objectives for WP6 and WP2
-- Thursday 14 afternoon: Review and discussion for WP1 (including presentation of the prototype of a voice e-learning portal)
-- Friday 15 morning: Plennary meeting (administrative issues, review of project...)

Please, send any comments to this very preliminary agenda.

Best regards,
Jack

MESSAGE 39
From: Jack
To: Project team
Subject: FTP server
Date: Friday, March 01, 2002 3:29 PM

Dear Colleagues,

the Quarterly report and all the documents generated in the project are in the FTP server.

You can take a look to the file 3.Project-doclist.xls in the ftp server to see a list of all the documents with the description, the folder where the file is, date, etc.

In order to keep this file (and the ftp server) updated we suggest that we should centralize the ftp server.

Please, send to me all the documents you would like to include in the FTP server. We will include it in the server and in the document list and we will send an email to all of you reporting the new file.

Best regards,
Jack

MESSAGE 40
From: Jack
To: Project team
Subject: Quarterly Report
Date: Friday, March 01, 2002 3:29 PM

Dear Colleagues,

the quarterly management report for the period october to december was sent yesterday evening to Brussels.

Please, find enclosed the report.
Best regards,
Jack
(See attached file: 48_Quarterly Report.doc)

MESSAGE 41
From: Jack
To: Project team
Subject: Meeting in Paris
Date: Thursday, March 07, 2002 7:09 PM

Dear Colleagues,

attached to this message you will find version 1 of the Agenda for Paris.

As u sual, please, let me know your thoughts about the agenda. Any active participation in the meeting (presentations, new issues...) is welcome.

The venue for the meeting is:

Partner 5

58, Avenue Bosquet (Metro: Ecole Militaire)

Paris 7eme

To the people who has made reservation to the Hotel suggested by Partner 5, remind you that the address is:

Hotel Royal Mansart
1, rue Mansart
75009 Paris (Paris 9eme)
Tel: 00 33 (0) 1 48 74 63 30

Best regards,
Jack
(See attached file: Agenda Paris.doc)

Message 42
From: Mary
To: Project team
Cc: Sajal
Subject: Report on Web and E-learning Authoring Tools
Date: Monday, March 11, 2002 9:46 PM

Dear All,

I am attanching a draft of the report produced by Partner 3 and Partner 8 on the accessibility and the the main features of the major web and e-learning authoring tools.

Please have alook at the report before the meeting in Paris if you can, and we will appreciate any comments and suggestions you might have as to how to extend the studies which have been done so far.

Kind regards.
Mary

MESSAGE 43
From: Mary
To: Project team
Subject: Report on Web and E-learning Authoring Tools
Date: Monday, March 11, 2002 9:54 PM

Dear All,

I am attanching a draft of the report produced by Partner 3 and Partner 8 on the accessibility and the main features of the major web and e-learning authoring tools.

Please have a look at the report before the meeting in Paris if you can, and we will appreciate any comments and suggestions you might have as to how to extend the studies which have been done so far.

Kind regards.
Mary

MESSAGE 44
From: Charles
To: Project team
Cc: Sajal
Subject: Accessibility problems & voice solutions
Date: Tuesday, March 12, 2002 2:04 PM

Dear partners,

The attached document is the second version of the document I alluded to in my e-mail on 1 February. It discusses what voice or VoiceXML can or can't do to make web sites more accessible. I look forward to your comments.

Best regards,
Charles

MESSAGE 45
From: Hazel
To: Project team
Subject: another document to read!
Date: Tuesday, March 12, 2002 4:41 PM

Dear Friends,

Here is the first draft of a chapter for you to read on the problems of access to analogue and digital learning resources for visually impaired students. This will form part of D1.1.

Best regards,
Hazel

Textual chunk, Wishes
Jonathan sent message *1* on 22/12/01 to wish everyone a happy Christmas. Hazel sent message *1* on 22/12/01, mentioning in it that she hopes that everyone had a safe trip home from London. Team members were also wishes a happy Christmas and new year. Hazel sent message *2* on 22/12/01 stating that she hopes that everyone had a safe trip back from the London meeting, also wishing everyone a happy Christmas and new year. Desmond sent a message *4* on 7/1/02 to the mailing list, but addressed the message to Hazel saying that he hopes she had pleasant Christmas days, and wished her happy Christmas and new year in this message as well.

Textual chunk, Closing for holidays
Hazel sent message *2* on 22/12/01 to inform everyone that the university would be closed until 2nd January for Christmas. In this message she also informed the team that during that period she would not be in touch with the team.

Textual chunk, Next meeting date
Hazel sent message *2* on 22/12/01 to inform partners that the date for the next meeting, which had been agreed on the second day of the 2-day, was 14th and 15th March, not 11th and 12th. A response from Desmond, had been received in reaction to the message sent by Hazel, message *4* sent on 7/1/02. Desmond however suggested moving the meeting to 3/4th April. No messages were sent in response to it. Two messages were sent that was associated with this goal.

Textual chunk, Paris meeting (booking accommodation for the meeting)
Lucy sent message *29*, a forwarded message to everyone on 15/2/02, concerning hotel bookings. On 18/2/02, message *32* from France Daillet (not a partner in this project) sent a forwarded e-mail to the team, informing them that they still wanted to know information about the list displayed in the main body of the message by 21/2/02. Two messages were sent that was associated with this goal.

Textual chunk, Paris meeting (arranging a meeting with those working in work package 3)
Christopher sent message *35* on 27/2/02 requesting a brief meeting in Paris before the consortium meeting to discuss the schedule for work package 3. The message also had attached to it UML documentation in case people were unfamiliar with that material.

Textual chunk, Paris meeting (draft agenda)
Jack sent message *38* on 1/3/02 a preliminary agenda for the second consortium meeting. He requested comments from all partners. Jack sent message *41* on 7/3/02, with another draft agenda for this meeting, requesting comments from team members. Details on the venue where the meeting was going to be hosted and also a reminder for the hotel, which was recommended for partners to stay at was also included in message *41*. Two messages were sent that was associated with this goal.

Textual chunk, Detailed work plan for the next three months (Typed up plan discussed during the second day of the face-to-face meeting)
Hazel sent message *2* on 22/12/01, regarding this goal. This goal was also mentioned in 3 other messages. Hazel sent 2 of those messages (*5* and *7*) and Desmond sent 1 (*4*). In message *4* sent on 7/1/02, Desmond informed Hazel that partner 6 generally agreed with the work which was assigned to them. However, reported that the time frame for their allocated work was too short, requesting additional time given to complete this task. Comments from other partners were also sought. In message *5*, sent on 8/1/02, Hazel informed the team that good comments had been received for the timetable on work package 1, and would collate all comments and report to the group in the afternoon. There was a delay with actioning this due to her having suffered from food poisoning. In message *7*, sent on 11/1/02, Hazel informed the team that the timetable had been ammeded, with a new version attached to this message. The ammedments had also been summarised in the main body of the e-mail. Hazel also mentioned that partner 4 had not yet contacted her as requested in her initial e-mail. Four messages were sent that was associated with this goal.

Textual chunk, Project presentation
Jack sent message *3* on 27/12/01, mentioning in it that tomorrow the first project deliverable had to be sent. A request was made for everyone to look at the document and to offer suggestions.

Textual chunk, Quarterly management report
Jack sent message *30* on 15/2/02 and mentioned in it that as he had said in London, they need to show the progress that was made during October and November. The information, which was needed from each partner, was highlighted and each partner was requested to send up to 4 pages. Jack also informed the team that he would circulate a draft document next week. A further 5 messages were sent looking at this goal, 3 by Jack and 2 by Fabian. Jack sent message *33* on 19/2/02, asking all partners to send their part of the quarterly report (they were told that the formatting was not important) to him. A summary of the type of information, which was required, was also included. Information was requested by this week. Jack sent message *34* on 26/2/02, informing the team that that he had not received input from many of the partners and that this information was urgently needed. Fabian sent message *36* on 27/2/02, which contained a draft version of this report. Comments were requested from partners as soon as possible. The team was also informed that the definitive version of this report would be sent the next day. Fabian sent message *37* on 28/2/02, which contained Fabian a second version of the draft. He informed everyone that the final version would be sent that evening. For this reason, the contributions and comments were requested from team members as soon as possible. Jack sent message *40* on 1/3/02, informing the team that the quarterly report had been sent to the commission yesterday and a copy of this report was included as an attachment to his message. Six messages were sent that was associated with this goal.

Textual chunk, Signed amendments
Jack sent message *12* on 16/1/02, confirming receipt of the signed amendments from partners 9, 6 and 8. Other remaining partners were asked to send it to him immediately. Brussels required this amendment to change the name of partner 8, as they have changed institutions.

Textual chunk, Amendment letter
Jack sent message *31* on 15/2/02, a forwarded letter from the commission. A request was made by Jack to send the letter urgently by courier. Jack sent message *33* on 19/2/02, a reminder that the letter had to be sent by courier and to be received as soon as possible. Jack sent message *34* on 26/2/02, informing the team that he was still waiting for the statement, and this had to be sent urgently. Three messages were sent that was associated with this goal.

Textual chunk, Authoring tools Accessibility guidelines
Jonathan sent message *1* on 22/12/01, which contained a URL for a W3C document.

Textual chunk, Meeting presentations
Hazel sent message *2* on 22/12/01 to inform the team that that the presentation delivered at the London meeting would be written up and distributed after the Christmas break. Message *9* was sent by Hazel on 14/1/02 to say that she had placed this information onto the ftp site. Two messages were sent that was associated with this goal.

Textual chunk, FTP site, Addition of new documents
Jack sent message *3* on 27/12/01 informing everyone that he had placed the project presentation file in the FTP site. This message also included the instructions on the changes on how to access the site. Hazel sent message *7* on 11/1/02, which informed the team that a new timetable had been placed onto the FTP site in a new directory. In this message Hazel also mentioned that the first draft of unmet learning needs questionnaire was also placed in a new directory. On 14/1/02 Hazel sent message *8*, informing the team that some additional documents had been added to the site as well. This information included the presentation which was delivered in London on computer access for visually impaired people. Jack had sent this information already in November, but as he was not sure if everyone received it or not they were informed again by Hazel in message *8*. Also, on 14/1/02 Hazel sent message *9*, informing the team that she had placed an encyclopedia entry (information concerning computer access for visually impaired people) on the FTP site. On 16/1/02 Jack sent message *12*, informing the team that the minutes from the meeting had been added to the site. Charlotte sent message *16* on 21/1/02, informing the team that she had attached to this message a document on the problems visually impaired people face when using websites. She also informed the team that she would put this document on the server. Fabian sent message *36* on 27/2/02, informing the team

that the site had been revised, and further new documents had been added to it. On 1/3/02, Jack sent message *39* saying that the quarterly report and its related documents had been placed on the server. In the same message, Jack also made a request for all documents to be sent to him, so that he could place them onto the server. Eight messages were sent that was associated with this goal.

Textual chunk, Report on problems encountered by visually impaired people on websites
Thomas sent message *6* on 11/1/02, which included a report and conclusions on problems encountered by visually impaired people on web sites. Thomas told everyone that this report was in French and he would translate this document at a later date. Charlotte sent message *16* on 21/1/02 also sent a report on problems visually impaired people face on web sites. Charles sent message *23* on 1/2/02 informing everyone that a draft document on solutions voice xml and compalabras could provide to visually impaired users, was sent to the technical partners in Spain. The main difficulties, which were found, were also summarized in this message. Charles requested comments on this. Thomas sent message *28* on 14/1/02 sending his conclusions and comments on the proposed tool using voice xml. He reminded everyone that as he is not a technical person, the solutions were not technical. His work simply identified where voice could be used. Four messages were sent that was associated with this goal.

Textual chunk, E-learning
Thomas sent message *6* on 11/1/02, giving his first impression on an e-learning document. He also asked a question on the e-learning portal and whether they were creating their own content or indexing other sites. Hazel sent message *25* on 7/2/02, acknowledging that the suggestions, which were given by Desmond, were good (to have two documents on e-learning). Hazel said she would give Mary this work to do. On 11/3/02 Mary sent messages *42* and *43* which were identical, her draft on features of e-learning authoring tools. She requested partners to try and have a look at this before the March meeting, mentioning that any comments on it would be appreciated. Hazel on 12/3/02 sent message *45*, a draft chapter on problems of access to dialogue and digital dialogue resources for visually impaired students. Five messages were sent that was associated with this goal.

Textual chunk, Protocol of evaluation for e-learning
Hazel sent message *8* on 11/1/02, informing everyone that she was still working on the protocol for current e-learning applications and would distribute this on Monday. Hazel, was the only person adding information towards this goal, and a further four messages were sent by her. On 6/2/02, Hazel sent message *24*, the final protocol for evaluation of current e-learning applications. In the same message Hazel also informed everyone that she did not receive any comments from partners, only Mary gave some excellent ideas. Also, Hazel said that she was still waiting for a list of participants for the study, so far only Thomas had contacted her. Lastly on 7/2/02, in message *25*, Hazel sent a message to everyone, addressed to Desmond, but copied to the team, saying that she had received the e-mail he mentioned. However, she did not realize that the same subjects were being used. Three messages were sent that was associated with this goal.

Textual chunk, Questionnaire on unment learning needs
On 11/1/02, Hazel sent message 8, which contained her first draft on the unmet learning needs questionnaire. In this message Hazel said that she would like some suggestions on it. On 15/1/02, Charles, sent message *10*, responding to Hazel's draft questionnaire, saying that the training market could not be ignored. Also a question was asked if any one had any experience on e-learning. On 18/1/02, Ronnie, sent message *13*, including his comments on the questionnaire. He said he hoped they would be useful, and if not, to ignore them. Thomas sent message *14* on 18/1/02, with his comments, mentioning that overall he felt that the questionnaire was clear, offering two suggestions. One to look at support and two to replace schooling. Hazel sent message *20* on 22/1/02, thanking everyone who filled it in, saying that a revised version would be sent out at the end of the week. Five messages were sent that was associated with this goal.

Textual chunk, Screenreader functionality questions
Annie sent message *11* on 15/1/02, apologizing for her delay in answering the questions, which were requested on 11/1/02. In this message Annie asked Hazel, from partner *8* to make sure that all partners who were involved in this work received this message. Desmond sent message *18* on 21/1/02, attaching his answers to the questions on Jaws. Two messages were sent that was associated with this goal.

Textual chunk, Dreamweaver
Hazel sent message *22* on 29/1/02, informing everyone that Mary, from her partner organization had found some information on accessibility kit extensions, to be used to make accessible web pages. A URL was also included in this message.

Textual chunk, Conferences
Erin sent message *27* on 12/2/02, including a URL to inform everyone of a conference, that some partners might find relevant to this project.

Textual chunk, Plan for work package 6
Jonathan sent message *21* on 29/1/02 to launch work package 6. All partners that would be participating in this work package were identified, along with their allocated man months. This message also mentioned that the dissemination plan must be finished by March 02, and would be examined by the project officer. Jonathan further mentioned that the questionnaire, which was attached to this message, must be returned by 8/2/02. On 7/2/02 Jonathan sent message *26*, the same information sent on 29/1/02. Two messages were sent that was associated with this goal.

Textual chunk, Meeting minutes
Jack sent message *12* on 16/1/02, requesting everyone to look at the file, which contained the meeting minutes, and to send any corrections or comments to him. Christopher sent message *15* on 21/1/02, minutes of the meeting, which was attended by the technical partners. He requested for any comments or ammedments to be sent back to him. The same contents of this message were re-sent by Annie in message *17* on the same day. Annie sent message *19* on 21/1/02, this time saying that she was sending it again, as last time some people had problems receiving it. Four messages were sent that was associated with this goal.

Attendees by: Jack, Thomas, Adam, Paul, Kevin, Desmond, Lucy, Ronnie, Morris, Elsie, Michael, translator for Michael, Hazel, Kenneth, Mary, Sajal, Charles, Annie, Christopher, Fabian, James

Ben is no longer working on this project.

Meeting started at 10am

Informing of late arrival

Hazel: Mary is coming, but we can start without her.
Jack: ah.
Hazel: She will be making one of the presentations
Jack: huh ***(Sub-state 1.1)***
Hazel: about workpackage 1
Jack: okay ***(Sub-state 1.1)***
Hazel: but she will be here by the coffee break, but that is not important to wait for her.

Review of the meeting agenda

Jack: Then in the meantime I can just um review what we are going to do.
[Jack is standing up while he is talking]
Jack: today and tomorrow we will wait for the real start. So the first thing is just to welcome
[Laughter as the light is switched on]
Jack: you to Paris, and to thank the people from partners 5 and 7 for the meeting. And, um so, just reviewing what I would like to do today. Today we will start of with a review of work package 6 and 2. And then a presentation of a demo that was agreed in the last meeting in London to create a small demo for the users so that they can start thinking and seeing what the prototype can be. This is a very preliminary [pause demo]
[Whispering between Michael and his translator]
Jack: And in the afternoon we will dedicate the whole afternoon to workpackage one. That is the workpackage that is now more advanced and developed
Desmond: Hmmm ***(Sub-state 1.1)***
Jack: And then tomorrow we will start with a very short explanation of what work package 3 is going on
Desmond: hmm ***(Sub-state 1.1)***
[Ronnie arrives at the meeting]
Jack: I would like to remind you that yesterday afternoon we had our first working session, about work package 3, which started this month. Yesterday we were talking about a few things. Tomorrow we will explain to you what the plan is.
Hazel: right ***(Sub-state 1.1)***
[Lucy arrives]
[Whispering between Desmond and Kevin]
[Lots of small chatter between small groups]
Jack: So we will close the morning tomorrow with a short description about the administrative issues. What is needed, what was done, and then after all this discussion about the work, the different work package, we will have a more clearer idea about what is going on, so we can discuss and see what is the actions we will [pause] need to take and what the project is, how we are doing
[Can hear Ronnie whispering to someone]
Jack: we will have the next hours for deciding this things, and what is the work for the next future. I will also say that the next three months are very very important, and that maybe the [pause] or maybe it is of use to me, the future of the project will depend on the work done in the next three months
Desmond: hmm ***(Sub-state 1.1)***
Jack: I remind you that we have money for 12 months
[Whispering between Desmond and Kevin] abc
Jack: we will send documentation, in month 10 to the commission so that they can analyse what the project is, how the project is doing and they will [pause] decide if we have more money for the project for the next 15 months. The next three months are really important. And just one more thing, maybe you can see that Jonathan is missing here. He is technical co-ordinator. I would say he is I should say he was technical co-ordinator. He has left us, our company, he went to Italy, and now he is working on Telecom Italia, Lab, so in research and development. The reason is a very common one, an illness called love
[Hazel laughs]
[Others laugh as well]
[Could hear the whispering while Jack was talking]
Jack: His girlfriend is in Italy
[Elsie says something to Michael. Was to do with Jonathan not being here]
Jack: So he will still be in contact with us, and will be happy to receive any information, but he is working now since today or tomorrow for Telecom Italia. So, in the meantime, maybe from today Fabian will help us with the technical support.
[Can still hear whispering while Jack is talking. Cannot hear exactly what is being said]
Jack: We will let you know any news about this.

Attempting to start the meeting

Jack: Ok, how I think we are all here. Paul?
Desmond: Paul is still missing. ***(Sub-state 2.1)***
Jack: Paul is still missing. ***(Sub-state 1.2)***
Desmond: There were problems with the taxi. We were waiting for about ¾'s of an hour.
[Laughter]
Jack: ¾'s oh an hour for a taxi? Oh
[Hazel is whispering to Kenneth]
[Laughter]
Ronnie: you use your white Kane at the airport
[Hazel laughs]
[Others laugh as well]
Ronnie: I did, I did use it for 30 seconds
[Laughter from partners]
Jack: okay so we can wait a few minutes more
[Can hear Lucy talking to someone in the background]
Desmond: you can start
Jack: we can start ***(Sub-state 1.1)***
[Can hear individual discussions]
Jack: Then we will talk about the work package 6.
[Can hear people having individual discussions. Cannot hear what is being said]

Review of work package 6, dissemination activities

[Mary comes in at 10.10am – Hazel informs her that they have not even started yet]
[Individual discussions still going on]
Fabian: Ok, so everyone please, we can start with the presentation on work package 6.
[Conversation between Morris, Desmond and Kevin]
Fabian: Well, first of all bonjour
[Laughter]
[Can still hear whispering]
Fabian: I would like to introduce myself, as Jack has said Jonathan has left for Italy. So, I will be making the role of the technical co-ordinator from now on.
[Christopher and Annie are whispering to each other. Cannot hear what is being said]
Fabian: I hope I will be able to do it as well [small laugh] as he has been working. And, since now I have been working with Jack into prepare all the idea activities, I hope to work in preparing the project documentation from the technical point of view and administrative point of view, point of view, especially in Jack's side, the telematics side. Well, I will be focussed now much more in the project. Ok now so we can start with the workpackage 6. Work package 6
[Lucy is speaking to Ronnie. Cannot hear what is being said]
Fabian: is the creation of the critical mass of interest in the project and the results of the project. This means that we have to make alot of dissemination activities and we have to make clear of what our exploitation in this will be in the future. This is strongly important and [pause] actually we will have to prepare our work, and this deliverable is very important for the commission. This deliverable is 6 4 and I will be talking about this later. [Pause]
[Translator translating to Michael whilst Fabian is talking]
[Elsie is sitting with her hand on her face]
Ronnie: Can you please repeat, I did not catch your name?
Fabian: [speaks slowly and clearly] My name is Fabain
Ronnie. Ok ***(Sub-state 1.1)***
Fabian: Well we will continue with the description of the work, this is the tasks of this work package.
[Can hear whispering in the background]
Fabian: Task number 1 is standardisation. I will explain all of this terms one by one later on. The second one is exploitation plan. The third one is clustering. The forth one is dissemination of the project Tool and certificate and the last one is creation of voice web pages. The first one is standardisation.
[Could still hear whispering in the background while Fabian was talking]
[Paul comes in at 10.15am]
[People continue with their own conversations again. Welcome Paul]
Fabian: Okay can we go on? We were talking about what is standardization what is exploitation. We were reviewing each one of them tasks included in this work package. The main objective of this work package is the standardization of the project certificate
[Can hear people whispering in the background]
Fabian: and this will be done by establishing contacts with the voice xml forums and W3C, the world wide web consortium, and whitegroup – this organization will help us reach this objective.
[Can still hear whispering in the background]
[James points to something on a paper and shows it to Jack]
Fabian: I think no work has been done in this side of the work package, which will obviously be in our efforts for the next few months
Jack: At this point I would like to know if someone is a member of W3C. I remember that [pause] yesterday, the day before, FJ was asking about that
[Hazel puts up her hand]
Jack: partner 7 is a member of WI?
Ronnie: no, no, ***(Sub-state 2.1)***
Lucy: no, no ***(Sub-state 1.2)***
Ronnie: we are not members but I have very good contact. ***(Sub-state 1.2)***
Paul: They usually have a member of the web staff on the outreach, so I guess we could put the word through.
James: We will be directing this at this end. For those of you who are not participating in this. It is important we hear about the types of documents, deliverables you are making.
Hazel: I think we should um make a written submission to the director of the WAI in the first instance, because they have a lot of activity which is going on, and we should ask them [pause] would they be willing to add e-learning to those activities.
[Paul nods his head and says yes, Fabian nods his head, James nods his head] ***(Sub-state 1.1 x 4 spoken and non verbal evidence from 3 people)***
Hazel: but the problem is, I think if there is first of all, WAI, does not do standardisation
Fabian: uh-huh ***(Sub-state 1.1)***
Hazel: it is not standardisation body and it is not allowed to use the word standardisation. So they have recommendations
[Uh-huh said in the background – cannot tell who it was] ***(Sub-state 1.1)***
Hazel: that if um [pause], so I do not know how they would feel and perhaps Kenneth could comment about a group coming along saying
Kenneth: my guess is they would not be very interested in so far as the other certificates around, of which there are several, do not have, although ***(Sub-state 2.1)***
[Can hear whispering in the background]
Kenneth: they mention Wai and W3C, as being conformance to, they are not recognised by WAI and W3C.
[Fabian nods his head] ***(Sub-state 1.1)***
Kenneth: So, from what I have seen, I do not think that [pause] they would formally recognise um a project certificate. ***(Sub-state 2.1)***
[Can still hear whispering in the background]
Kenneth: Plus the process will still be an extremely long one
Hazel: yes, yes ***(Sub-state 1.1)***
[Fabian nods his head] ***(Sub-state 1.1)***
Kenneth: at this stage
Hazel: That is the other point I was going to make the WAI works very slowly. So, we must bear that in
Kenneth: hmmm ***(Sub-state 1.1)***
Hazel: mind
Kenneth: hmm ***(Sub-state 1.1)***
Hazel: So, I think we should make a formal approach to the director who is JB as soon as possible. I think that can be a letter setting out what we want to do, and I think probably between us and partner 7 we must know some people on um [pause] not only on the Outreach committee, the Outreach committee, is not the right one
[Kenneth says huh] ***(Sub-state 1.1)***
Hazel: it is not the management committee
[Kenneth nods his head and says huh] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Hazel: that we want to get interested in this. So, we should find out who is on the management committee at the moment that we know and to talk to them. That we can do.
[James nods his head and says yeah] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: there are some interesting areas here to as what degree is the whole process actually part of the W3C process of the establishment and standardisation of voice xml and those related areas.
[Fabian nods his head] ***(Sub-state 1.1)***
Hazel: uh-huh [Nods her head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: and to what degree is WAI, influencing that process. WAI is tending to work in other areas, and to concentrate in those areas. Um, but recognising the needed influence in the progress. So, the situation is fairly complex, um and certainly from our point of view, as partner 3 we are only involved in certain strands of it, because the effort needed is so enormous and the discussions

Hazel: huh ***(Sub-state 1.1)***
[Fabian nods his head as well] ***(Sub-state 1.1)***
Kenneth: and the level of discussion and the understanding that our input is only one of many inputs – in order words the needs of visually impaired people within this area, um, is only one input in comparison to the needs of say commercial producers to producers standards rich which are going to be viable or the wider range of what is happening
[Can hear whispering in the background].
Kenneth: And that is bringing all of this together. So WAI itself is not fully active in all of these areas.
Hazel: huh. Yes, following on from that, you might find that the WAI say ok, UB, the project can be [emphasis on B] the group that liases with voice xml ***(Sub-state 1.1)***
Kenneth: huh ***(Sub-state 1.1)***
Hazel: committee in W3c, in order to ensure accessibility. That would be a lot of work for us, but the commission would be very happy
Kenneth: huh ***(Sub-state 1.1)***
Hazel: because it would show we were taking responsibility and the European group was taking responsibility
Kenneth: huh, right ***(Sub-state 1.1)***
Hazel: So maybe that is something that we should [pause] ask in a letter to JB
Kenneth: huh ***(Sub-state 1.1)***
Hazel: does anyone concerned about voice XML, because we are to the liaison between WAI and voice xml working group, or whatever it is called. So,
[Annie smiles, Fabian and Kenneth nod their heads] ***(Sub-state 1.1 x3 from 2 people)***
James: We agree that it could be very benefiting or important for the commission to see that we are ***(Sub-state 1.1)***
[Can hear whispering in the background]
James: contacting the group, it could be possible to do this movement, this letter, this connection with this organisation group for the next phase
Hazel: yes ***(Sub-state 1.1)***
James: phase of this project
Hazel: yes ***(Sub-state 1.1)***
James: and to the commission
Hazel: yes, absolutely ***(Sub-state 1.1)***
[Paul says yes as well] ***(Sub-state 1.1)***
James: Who is going to take this decision
Ronnie: Please I would like to say something before we take a final decision.
James: Yes ***(Sub-state 1.1)***
Ronnie: As [pause] it has already been correctly stated by Hazel [pause] standardisation is not an activity of w [pause] W3C and ***(Sub-state 1.1)***
[Someone says WI]
Ronnie: and WI. There guidelines, um different kinds of standardisation. The standardisation body in European Union, in Europe I would say are at present three. This is SEN
[Paul nods his head when Ronnie says Sen] ***(Sub-state 1.1)***
[Hazel, Kenneth, James and Kevin have their hand on their face]
Ronnie: SE and Synilec. Now Senilec is working mainly with hardware. SE is working with telecommunications. SEN is working with general standards. And, it has a specific factor, which is SEN ISSS. This is um [pause] SEN information society standardisation systems. Now there are, in this area, a workshop has been constituted
[Whisper between Hazel and Kenneth. Cannot hear what was said]
Ronnie: to analyse the, the present situation of standardisation in the area of [pause] information society related standardisation for people with special needs, in particular for blind and other. I happen to be chairman of this workshop, which in the language of the standardisation body is like a working group.
Annie: uh-huh ***(Sub-state 1.1)***
Ronnie: It is a temporary working group. This temporary group, or workshop in the language of them is that the task is to prepare a general [pause] a general aspect of different standardisation guidelines existing
[Can still hear whispering between Hazel and Kenneth]
Ronnie: all over the world. Now I think that talking about standardisation in connection with WAI is impossible. IF we want to have a certificate that will not be um an in issue of standardisation, it will be a certificate [pause] if we think about, if we talk about standardisation we must go, in my opinion to SEN, and ask if it would be possible for them to create a [pause] which is called a CWA – which is a SEN working agreement in order to go this way. It is a very complicated and um very long procedure.
[Whispering between Christopher and Annie]
Ronnie: And we will not finish into the three months time
[Hazel, Kenneth and Mary laugh when Ronnie says three months]
Ronnie: So, we can start the work but I am not sure if we can have a response already exists. Because it has to go through different bodies, I can try and contact SEN immediately, but it would take some time. ***(Sub-state 3.1)***
[Lucy looks like she is concentrating hard]
Ronnie: But it would take some time to know if they are ready to um go and work with us.
[Can hear whispering in the background]
Ronnie: My question is if we need a certificate and I see a need of a certificate, I think if we do not, my personal opinion is that we do not need a real certificate of standardisation, because a standardisation certificate in that kind on [pause] thing is something which goes with hard, normally hardware, or software
[Can still hear whispering in the background]
Ronnie: but not with the project we are trying to prepare now. So I think we are not very much in a hurry to look at this. Conclusion. Um, if the group thinks it could be useful I would do the same with SEN, which Hazel has already proposed with WAI
[Uh-huh said by someone] ***(Sub-state 1.1)***
Ronnie: in order to see if we can start and in what workshop, and in their working group, they have very many working groups, and what work group we can, we can start something.
Paul: Can I ask a question?
James: Yes ***(Sub-state 1.1)***
Paul: To liase with the voice xml working group to show our activities, that at least in my opinion would suffice to satisfy the commission. I see the need for a certificate.
[Ronnie mummers something in the background]
[Can hear whispering in the background]
Ronnie: The last, just for you please to have all the elements for your answer
[Mary whispers something to Hazel]
Ronnie: I am a member of the e-accessibility group of the information society and York 2002 program. We had a meeting last [pause] 12th March
[Mary shows something to Hazel and whispers]
Ronnie: and I have um, I have had some contact with the educational, educational unit of um, [pause] the general director of education, sorry general directory of information on e-learning unit]
[Can still hear Hazel and Mary whispering]
Ronnie: And I think for us, it is of great utmost importance to get to try and connect with them, because they are [pause] in the commission, they are the commission
[Morris and Lucy are sitting with their arms crossed]
Ronnie: so, I think that having to, to
[Can still hear Hazel and Mary whispering to each other. Cannot hear what is being said]
Ronnie: to start co-operating with them, as far as possible, because one never knows with the commission, if they are interested or not, is that they can

cooperate with the project under the review or another, another di, directory in general, but we can try, we can try. I have already, I have already contacted the gentleman of this, this [pause] department, so I could um get in contact with them, and see if there is the possibility to obtain an official
[Can still hear Hazel and Mary whispering to each other. Cannot hear what is being said]
[Paul and Kevin also whisper something to each other]
Ronnie: um, so to say an official certificate to means of evaluation. If we can cooperate with them in order to obtain something like that, something like so. Now, I, sorry have really finished.
[James laughs. Ronnie has a smile on his face]
Hazel: Can I just a small point, and that is that you mentioned EPSI in passing and that EPSI is um [pause] telecommunications and therefore I think the implication is not relevant, but EPSI currently has a working group which I am on which is considering design for all, access to ICT products and that does have a [pause] small piece about voice interaction. Um, so I could contact myself and say I think it is important the project has some input in what we are doing
[Fabian nods his head] ***(Sub-state 1.1)***
Hazel: and I think that it would be good for the next review to show that we have started the process of interacting with as many different groups, standardisation and other groups as possible. So, I think we should add EPSI to the list and I can take responsibility for that.
[James nods his head] ***(Sub-state 1.1)***
James: A very interesting, um opinions from the different sides, so we will try and make it a clear summary, that it is possible for the project to make links with different organisations. The last is EPSI that is Hazel is going to take this possibility to make the first step. Um, [pause] also before it has been indicated that we need to try and contact with e-learning general directorate of the commission. This is also a very important point. [Pause] The following conclusion of the meeting for the last 12th of March I believe, no
[Paul says uh huh as well] ***(Sub-state 1.1)***
Hazel: uh-huh ***(Sub-state 1.1)***
James: um, actual the first action agree in this discussion was from Hazel I believe, trying to, to make, some sort of relation with the group around WAI?
Hazel: yes, yes ***(Sub-state 1.1)***
James: So the action point regarding the standardisation process, and the last point that [pause] I believe
[Can hear whispering in the background]
James: that this are the three action points for standardisation, and it would be necessary to discuss the points regarding the certification – what is the real need of certification. This is something we created in the initial contract of the project. From our point of view, it is quite difficult to try and get these certificates absolutely evaluated by us all, this is why it has been a very long process. But, um our opinion is that it would be interesting for the project to try and make some, lets say prototype certification in order to, to give all products that can be considered by the project, like accessible tool.
[Ronnie types something into his Braille machine]
James: This is the scope that in principle it could be possible to give. Regarding this certification, um, it will be interesting to know what is the point of view. So certification of related policies, but trying to comply with our commitments we should make some kind of certification. Is that alright by everybody?
[Most people nod their heads] ***(Sub-state 1.1)***
Paul: No, no. It does not answer my question, for me it does not. As many people have pointed out, the certificate of whatever kind requires an incredible amount of work and will take a long time. So, what do we really need a certificate for ***(Sub-state 2.2)***
[Kenneth and Hazel whisper something. Cannot hear what is being said]
Paul: if we can prove that we can collaborate with the different groups working towards recommendations, guidelines, I am hesitant to call the standards
[Can still hear Kenneth and Hazel whispering]
Paul: Um, would that not be insufficient? Coz, I mean this will take an awful lot of work and who is going to do it? And are we going to achieve it in the timeframe that we have?
James: So, do you think it is possible to make this certification by all standardisation's?, all [pause] with, so our intention is to try this um process and if it could be possible, it is quite difficult, by every department, but we can indicate to the commission that this initial objective seems to be very difficult to realise, so this is the approach, I can take a look
Kenneth: But
[Paul tries to talk as well, he said but]
Kenneth: there is a huge problem round this as to what are we certificating? What is the actual standard, in so far as the work we have already done in work package 1, as we will be talking about later on is exactly how difficult it actually is
[Whispering between Paul and Kevin]
Kenneth: to look at accessibility when you consider the range, for instance, visual conditions, the range of access technologies, the range of content, the range of what people are trying to
[Can still hear whispering in the background]
Kenneth: achieve with their content. And to actually put a certificate on which said something is or is not accessible is actually probably, there is um extremely difficult if not impossible to do.
[James nods his head] ***(Sub-state 1.1)***
[Can still hear whispering]
Kenneth: However, um, I think it is important that we continue this work in so far as, to look at [pause] the possibilities and therefore the contacts with people like WAI and other bodies and um, views to um, what degree can we look at, um, sometime of certification, um, it will be, it is valuable in terms of helping um, the wider community to understand some of the issues, but, um we already find that some of those sites that are certificated with one of the standards, which has been around for a long time, like Bobby for instance. There are still people who will say well yes it has got a certificate, but I cannot actually access it um, for various reasons. So, I think we have to be careful. Another thing we have to be careful about is standardisation and certificates, is that we are in an area of extremely fast moving technology and what you standardise and certificates today, will be um [pause] old technology tomorrow and infact the new techniques that people are using to present information will have to be re-looked at.
[Can still hear whispering in the background]
Kenneth: So, I am, we have to do this part of the work. Not least because it is in the project programme
[Ronnie says something and Hazel laughs]
Kenneth: but I also think we have to be aware that we need to understand what this actually means. That is one of the learning points that we need to go forward with.
[People having own discussions]
Fabian: Ok, any other comments on this points?
Hazel: Can I just add that there is a meeting of the WAI in Los Angeles ***(Sub-state 1.1)***
[Can hear whispering in the background]
Hazel: on, I think it is the 23rd of March, and partner 3 is sending a representative to that, I happen to know, as I was talking to him [laughs]. Kenneth might not know that.
Kenneth: No, I did not know that ***(Sub-state 1.1)***
Hazel: yes, yes [laughs] that is ok. So I will ask the partner 3 representative to tell them about the project. ***(Sub-state 1.1)***
[Fabian nods his head] ***(Sub-state 1.1)***
Hazel: ask what activities there are, and then I think we should follow that up with a formal letter from the project leader of the project to the director of WAI
Paul: yes ***(Sub-state 1.1)***
Hazel: after that meeting
[Can hear whispering in the background]
Hazel: so if I liase with you
[Jack nods his head] ***(Sub-state 1.1)***
Hazel: and you remind me if I do not contact you to tell you of what happened at the meeting
Jack: The meeting was, when was the meeting?
Hazel: I think it's the 23rd of March

[Can still hear whispering in the background
Hazel: but it's certainly
Paul: it's in conjunction with SCISO
Hazel: that right ***(Sub-state 1.1)***
Kenneth: yes [Kenneth nods his head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Hazel: yes, I'm not
Kenneth: huh ***(Sub-state 1.1)***
Hazel: I might have the exact date wrong, but it is certainly before Easter ***(Sub-state 3.1)***
Kenneth: yes and hmmm ***(Sub-state 1.3)***
Hazel: and in conjunction with the CJUN
Kenneth: huh ***(Sub-state 1.1)***
Hazel: conference in Los Angeles. It's very good because it is very soon.
James: They are going to contact the organisation and we are going
[Can hear whispering between Hazel and Kenneth]
James: to inform everyone.
[Can still hear whispering between Hazel and Kenneth]
Fabian: ok, lets move on to the next point now.
[Can hear Kenneth and Hazel whispering]
Kenneth: The next point is the exploitation plan and the objective is to obtain economic viability and social control approach. We think in this task the partners should be included are the ones with the commercialisation which could act as the point of view of experience in this kind of activities. But of course we are open to [pause] all kinds of comments and collaboration. I think this is something we should discuss, and I think we should try to analyse which are the partners
[Can hear whispering in the background]
Fabian: that this opportunities of commercialisation which can make an import of our marketing. I think with all partners we should also be doing clustering, this is the active participation in clustering called Assistive technology for systems
[Can still hear whispering in the background]
Fabian: and this is something we have not made by now
[Hazel laughs]
Fabian: and [pause] it is something that the project officer has reminded us.
[Lucy and Kenneth say yes] ***(Sub-state 1.1 x 2 evidences from 2 people)***
[Some other people say yes in the background as well] ***(Sub-state 1.1)***
James: so this is the co-ordination with [pause] the organisation, so our intention is to try and achieve potentially one of these meetings.
[Can hear whispering in the background]
James: perhaps in April or May. The technical advantage of the initials attempt to the project in the standardisation process or it can be a very good approach.
[Annie and Hazel nod their heads] ***(Sub-state 1.1 x 2 evidences from 2 people)***
James: so it has been recommended, it has been reminded by the commission that
[Can hear whispering in the background - conversation is between Paul and Desmond and there is some laughter]
James: we follow this period of three months that we have in front of us. We have to present this information to the commission.
Jack: Clustering, clustering is a kind of pool of European projects working in similar matters
[Fabian nods his head] ***(Sub-state 1.1)***
Jack: So it is the meetings
[Can hear Ronnie whispering]
Jack: and show the work so we can some moment of the work of plan, the project can be used for different projects
[Can still hear Ronnie whispering]
Jack: so use all the existing knowledge in European projects. So to show what are we doing and what other projects are doing.
Ronnie: I am sorry I was a little [pause] confuse before. ***(Sub-state 1.1)***
Jack: yes ***(Sub-state 1.1)***
Ronnie: we speak before, but regarding dissemination we have done e-business
[Can hear whispering in the background]
Ronnie: it was sent, the report was sent
Elsie: the report was sent [this was said to James] ***(Sub-state 1.1)***
Fabian: yes ***(Sub-state 1.1)***
Ronnie: if you, if you want us to say something right
James: If we are interested in [pause] sorry?
Elsie: dissemination, yes
Ronnie: it's 6.2, its 6.2 isn't it Elsie?
Elsie: 6.4 ***(Sub-state 2.1)***
Fabian: 6.4 ***(Sub-state 1.2)***
Ronnie: 6.4 ***(Sub-state 1.2)***
Elsie: yeah, its more or less the response to the questionnaire that we sent, so I guess it's what the organisation has prepared ***(Sub-state 1.2)***
James: yes ***(Sub-state 1.1)***
Elsie: for dissemination plan
Kenneth: uh-huh ***(Sub-state 1.1)***
Elsie: you use it to try and use it
Kenneth: yes ***(Sub-state 1.1)***
Elsie: to draft, to try and get together
Jack: other ideas that we had and um to liase and to see how the others have imagined this dissemination strategy
Jack: I am sure that every partner has been doing some dissemination activity, and we have to collect all this effort, and direct it to the same directions
Elsie: yeah [Elsie nods her head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Ronnie: I want to propose that we take over this task
Jack: yeah ***(Sub-state 1.1)***
Ronnie: and you send, all, all your material to Elsie
Jack: yeah ***(Sub-state 1.1)***
Ronnie: and she will make um, make a report out of it.
Elsie: yes, I can do it ***(Sub-state 1.1)***
James: yeah ***(Sub-state 1.1)***
Ronnie: for those that have done dissemination of whatever kind, you should inform us
[Some people are having their own discussions. Cannot hear what is being said]
Fabian: Ok, task number 4 is dissemination of the project tool and certificate
Ronnie: I am sorry, I am sorry, did you close the discussion about the cluster?
James: um u [pause] no, no ***(Sub-state 2.1)***
[Can hear people whispering]
James: no we have not done that, we can come back to the discussions ***(Sub-state 2.1)***
Ronnie: How can we, how can we identify the different projects, the running projects, which are more or less related to [pause] to our parts
[Hazel and Kenneth whisper - cannot hear what was said]
Ronnie: This is not an easy task, because we do not know, we are not aware of this, we are not aware of projects that are running around

Hazel: but the commission will do that
[Kenneth, Fabian and James nod their heads and say yes] ***(Sub-state 1.1 x6 evidences, verbal and non-verbal from 3 people)***
James: This is clustering - the commission tries to do with every project, to try to take advantage with whole projects, between the different projects funded by European Commission. So this kind of clustering meeting is in order to get every projects they know, a bit about the project difference and line
Ronnie: I am not talking abbot the, the usefulness of this activity ***(Sub-state 2.1)***
Fabian: yes ***(Sub-state 1.2)***
Ronnie: I just wondered how we can, where we can kind um [pause] old information
Hazel: uh-huh ***(Sub-state 1.1)***
Ronnie: regarding this opinion. Hazel could help us?
Hazel: I do not think it is our responsibility Ronnie ***(Sub-state 3.1)***
[can hear whispering]
Hazel: The commission will organise that
Fabian: yes ***(Sub-state 1.3)***
Hazel: they, are they organising a consultation meeting for the clusters
James: uh-huh ***(Sub-state 1.1)***
Ronnie: are they? I am not aware of this ***(Sub-state 3.1)***
Hazel: ah
Hazel: I thought that was
Kenneth: that's what they normally do
Hazel: that's what they normally do ***(Sub-state 1.1)***
Ronnie: yes, but I think we have to stimulate them, maybe we have to tell them
Hazel: [laughs] please do not stimulate the commission anymore ***(Sub-state 2.2)***
[Laughter from everyone] am sure am sure am sure
Hazel: OK, I am sure that the
[Whispering in the background]
Hazel: project officer will get a list of any projects [laughter]
Fabian: yes ***(Sub-state 1.1)***
James: This action of this will be
[Whispering in the background again]
James: for the project
Ronnie: and the educational projects. I think these the two full strands we have to look at
James: uh-huh ***(Sub-state 1.1)***
Ronnie: are these the two strands I have to look at? I.e. the SEI projects?
[Kenneth whispers to Hazel]
Ronnie: technology than educational projects. Do you think this is the
Jack: In the ISDN area we actually want the social [Difficult to hear exactly what Jack is saying as the tape picks u the conversation between Kenneth and Hazel more clearly than what Jack is saying]
Jack: You can do a search
[Fabian nods his head] ***(Sub-state 1.1)***
James: any comments regarding clustering parts? We will continue with the next part of the project certificate. This is going to be led by partner 7, in that sense the contribution is very important marking this meeting, that this deliverable 6.4 is considered by the commission as one of the more important items
[Mary nods her head] ***(Sub-state 1.1)***
James: for the third year of the project, it is going to analyse in detail the deliverable regarding
[Can hear whispering in the background]
James: before we have to decide to follow up the project, the reason is that everybody is try to contribute
[Can hear whispers in the background]
James: with each point of view, regarding the deliverable, we have to see some of them, but there is other, but unfortunately has not been received yet. But we hope to receive it [pause] short time. My final point of the meeting is to get a brief action plan, which we can see this is the contribution to make. Okay?
Hazel. Can I just clarify when partner 7 said they would prepare a report, is this, is that deliverable 6.5 dissemination plan or is that a different report
Ronnie: no, we were talking about the report, about ongoing dissemination activities. Okay? ***(Sub-state 2.1)***
James: one of the tasks, which must be included in the deliverable
Hazel: uh-huh ***(Sub-state 1.1)***
James: important task is standardisation, clustering
[Can hear whispering]
James: or partner 7 has the responsibility of one of the three parts of this deliverable in the same way the task number 1, standardisation perhaps this responsibility, Hazel perhaps this could be distributed between you and partner 7?
Hazel: Okay ***(Sub-state 1.1)***
James: or
Hazel: I do think that
[can hear Ronnie whispering]
Hazel: some of the letters should come from the project leader, but I am happy to take care of the
activity
James: okay ***(Sub-state 1.1)***
Hazel: and liase with everybody
James: okay. The standardisation plan we are going to take responsibility and we are going to make our intentions in writing. Dissemination, partner 7. And the last task is the creation of the web page ***(Sub-state 1.1)***
Fabian: The last task is the creation of voice with pages. This means the creation of web pages of interest for visually impaired people. Maybe the official project webapge or European Blind Union
[can hear whispering]
Fabian: or partner 3their observation - the pages will be created as part of the project tool. I think this is a good way to disseminate results because I um sure that all visually impaired people will have access to these websites and um [pause] and it is a good way to let them know that it is, that the project is completing what it does. It gives a good opportunity to see c bat this webpage has to be ready
[Ronnie tries to speak]
Ronnie: Does this, it is not very clear, because if we are involved in the dissemination of webpages ***(Sub-state 3.1)***
Fabian: yeah ***(Sub-state 1.3)***
Ronnie: voice web pages, we have to see them
[Discussion between Desmond and Kevin]
Ronnie: and [pause] do they exist already or not?
James: No, no, this will be something not necessary to offer at least once for the commission before July ***(Sub-state 2.1)***
[Can detect whispering]
James: in order to show a practical source to the project to show, to ask one page is accessible
Ronnie: yes ***(Sub-state 1.1)***
James: in voice xml.
Ronnie: Can you explain it to a totally ignorant person

[Hazel laughs]
Ronnie: what is needed to have this voice, voice web page? We need to have [pause] whole software already developed
James: um, yes, but, um, [pause] maybe it would be directed to have some page accessible ***(Sub-state 1.1)***
[Whispering between Kevin and Desmond - cannot hear what was being said]
James: maybe not absolute, but maybe some element accessible by voice, in order to show to the commission that, um work is being carried out according to the scheduled plan.
[Mary points to her document and says something to Kenneth - cannot hear what is being said]
James: for the aim of the project, by end of the 2003, the opportunity to identify one of these webpage that could be necessarily
[Can still hear whispering in the background]
James: the rest will be more or less accessible to the commission, so we have here some sensitive rationale that could be
[Can still hear whispering in the background]
James: which would be the point of view of you, to, be possible to have one page which would be technology of the project - um, the role of the application is to provide the content and after that it would be provided by both partners 1 and 2. This is the conclusion that I would like to give.
[Can hear Kenneth whispering]
[Paul clicks his finger's to draw attention]
James: sorry, we are going to provide the content in which format? in html or
Annie: yes ***(Sub-state 1.1)***
James: yes, and after that to make voice xml and to then carry on with the technological partners ***(Sub-state 1.1)***
[Can still hear Kenneth whispering]
[Paul clicks his fingers again]
Paul: um, so, if I understand you correctly you want to identify a page, a page that is already there?
James: yes ***(Sub-state 1.1)***
Paul: a page that um [pause] a page that will make it accessible through the voice xml tool and so that we can use that page with the voice?
[Can still hear whispering]
Paul: Is that what you want, to take an existing page
[Kenneth is whispering]
Paul: Is that, is that what you want? To take an existing page and to let them know if it is accessible or not?
[Fabian nods his head and says yes] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Hazel: hmmm ***(Sub-state 1.1)***
[Can still hear Kenneth whispering]
Paul: or is it accessible through voice?
[Can hear whispering in the background]
Hazel: yes, you can add partner 8 to that list, we will be happy to have some pages in voice
[Can still hear some whispering]
Jack: Right now for the next three months, we can do for one ***(Sub-state 2.1)***
Hazel: right ok, I thought you wanted some volunteers ***(Sub-state 1.2)***
[Mary laughs]
[Some others laugh as well]
Jack: You are the volunteer?
Hazel: [laughs] no, no ***(Sub-state 2.1)***
[Some others laugh as well]
[Can hear Ronnie whispering]
Hazel: If you just want to do it for one initial organisation, I thought you wanted many volunteers
Jack: I am happy as it is ***(Sub-state 1.1)***
Hazel: yes, yes, at the end ***(Sub-state 1.1)***
Jack: yes, sorry ***(Sub-state 1.1)***
Paul: Take the partner 7 page, I mean
Hazel: yes ***(Sub-state 1.1)***
Paul: The partner 7 page is for, for blind, all the national organisations
[Ronnie is whispering]
Paul: and they all got the best approach which is the [pause] for um all of us, not just representing a single national organisation.
[Morris puts his hand up]
Morris: I just wanted to know what are you, what do you expect from us, as the pages are already there?
James: yes, no what I, what we expect is to have one pause] one person which is, the one contact person which is able to provide the contents and to make the elements and to obtain the confirmation that it is possible to make, to this voice xml, this visual um accessible to web pages for everybody ***(Sub-state 1.1)***
[Kenneth is whispering]
James: And from my point of view
Ronnie: just to be
Paul: to be
James: it does not have to be very long work
Paul: in parallel? Is it right you would have two parallel pages
[Can still hear whispering]
Paul: just the regular? say the html page
James: yes ***(Sub-state 1.1)***
[Fabian says something to Christopher]
[Jack gets up and talks to Christopher]
[Annie and Desmond nods their heads] ***(Sub-state 1.1 x 2 from 2 people)***
Paul: so take the partner 7 page and this form is available right now and you would have this same content in parallel
James: with voice xml content
Paul: yes, ***(Sub-state 1.1)***
James: yes that is what we are thinking about ***(Sub-state 1.1)***
Jack: Later in the table of Compolbaras plug in, you can see there is very short examples of the existing page and how it is
[Can hear whispering in the background]
[Hazel, Kenneth and Mary are whispering]
Jack: and you can take any page. Of course the process will move the tool, as it does not exist
Fabian: it will make it an automatic process
[Can hear whispering]
Ronnie: can I, can I
Jack: yes ***(Sub-state 1.1)***
Ronnie: I have one question, just one small problem, to clarify. Point number one if we use um for example the partner 7 webpage and we work on it
Jack: yeah ***(Sub-state 1.1)***
Ronnie: that will be restricted to language. The problem is if it is foreseen, I do not know, can you clarify this for us? Is it foreseen to have it as accessible in the languages of the user organisation s?
[James has hand on face with his arm resting in his elbow]
Ronnie: or is it representative user organisations from the project, because that me and that we must have solutions for the Italians, we must have solutions for the German,

[James nods his head] ***(Sub-state 1.1)***
Ronnie: we must have solution for, for French we have, and is this, how is the situation? Because the user organisation are have different languages. So all the user organisation languages or some, pause is it sufficient for the two languages already used in the partner 7 homepage?
[Fabian is speaking to Annie and Christopher - cannot hear what they are saying]
James: in this project, from my point of view, to have the web accessible to different language.
[Elsie is nodding her head] ***(Sub-state 1.1)***
James: This is the final of the deliverable, it is all this short term, for the three months, to have one webpage, which is as possible
[Can hear whispering in the background]
James: Yes, only language, English French
Ronnie: what has Compolabaras already
James: already
Ronnie: Spanish?
Annie: I think we should move this discussion on, we can move this discussion later on when we show the demo that we made and if you want I can read it now, but
Ronnie: no, no ***(Sub-state 2.1)***
Annie: it is
Ronnie: we do not need ***(Sub-state 2.1)***
James: by the afternoon
Annie: now it is English and Spanish
Ronnie: ok, ok it is clear ***(Sub-state 1.1)***
[Annie nods her head] ***(Sub-state 1.1)***
Ronnie: So the first sample would be in English, Can we take this decision
James: yes ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
James: Ok and the trial webpage with voice is going to be by partner 7 ***(Sub-state 1.1)***
[Whispering]
Ronnie: well, is it to be on the partner 7 webpage?
James: yes ***(Sub-state 1.1)***
Ronnie: it will be done by all user organisations in corporation
James: yes [but this was said hesitantly] ***(Sub-state 1.1)***
Elsie: I can do that, I man I am not a technician
Ronnie: no, you cannot ***(Sub-state 2.1)***
James: Because the initial point of view is
[There are some discussions taking place]
Ronnie: He will co-ordinate with Morris, of course the director, to particulate, with the other union organisation, as far as they have to make the test, well
[Elsie whispers something]
Ronnie: Is it okay for you Germany?
Paul: I guess, um eventually yes ***(Sub-state 1.1)***
Ronnie: okay ***(Sub-state 1.1)***
[Hazel laughs and others laugh too]
Morris: I need some clarification - if I understood correctly is it that we will be taking one existing page, which is already on the partner 7 website
[Some people say yes to what Morris has just said] ***(Sub-state 1.1)***
Morris: and it does not matter to select that page? [Tape 1 ran out]
[Tape 2 inserted]
Morris: If I understood you correctly then you wanted just on language for this first cloud here, for the first three months
James: yes ***(Sub-state 1.1)***
Paul: but later on obviously we all need the partners of the languages to be represented.
[Agreement by James, Fabian and Ronnie. They all say of course] ***(Sub-state 1.1 x 3, evidences from 3 people)***
[Fabian and Charles whisper to each other]
[Small discussions talking place]
James: so, thank you very much for your comments and your contributions
[There is whispering in the background]
James: and perhaps we can close this, and move to the next point, which is the actual plan we are proposing
[Elsie is nodding her head] ***(Sub-state 1.1)***
James: and the rest of the deliverables and after work package 6, deliverables 6. 1 is in general, here are the 5 deliverables which are sent to the commission in all projects, which is clear is that deliverable 6.5 is more urgent in the point of view, it is the most important for them. It is the issue that we have been discussing in the last hours
[Whispering is still placing place]
James: and we have made some advance and we have reached some understanding. The rest of the deliverables are expected for the end of the project. it is to end in September 2003, but we must have the deliverables for the dissemination, right. There has to be, there has to be [pause] more for this one and if we are able to indicate in the dissemination and use plan, actions we have agreed in this meeting, this deliverable will be more [pause] efficient and interesting results, so the conclusion of this meeting, has to do with this deliverable and after that we are doing to see the actual plan we are going to send this deliverable for 8th of march or third week of April. This deliverable indicating conclusions
[Can still hear whispering]
James: action plan and the next way we are going to make, yeah? Okay, the closing point is just to comment that the questionnaire it has been sent by partners 1 and 2 some time ago, and w have received many contributions from the partners
[Can hear whispering]
James: each partner must review if it has made contributions in this point, because it is going to be used for this deliverable and other deliverables.
Paul: ok, which questionnaire are we talking about? ***(Sub-state 1.1)***
Fabian: well it is a questionnaire partners 1 and 2, I think partner 6 [pause] I think we already have the answers from Desmond
Paul: I did not catch it, I just wanted to follow what you are talking about, that's all ***(Sub-state 3.1)***
Fabian: ok ***(Sub-state 1.3)***
Fabian: the dissemination plan, to use the plan for dissemination, exploitation plan for
Paul: ok ***(Sub-state 1.1)***
Fabian: ok and that's it ***(Sub-state 1.1)***
James: Ok, this is the information that we are going to use [pause] to create a deliverable, please let us know if you have contribute or not and if negative case, please submit as soon as possible. Regarding the actual plans from this, the immediate action plan from this ***(Sub-state 1.1)***
[Can hear whispering]
James: deliverable, the submission date is the last day of March, we are going to send first week of April. We are confident we are not going to have a too many problems and only one week delay. So, um, the limit date to receive all individual contributions, many of them have already been arrived, received
[Can hear whispering]
James: and the limit date is um, um [pause] 11th [pause] 19th of march, sorry. Okay
Elsie: 19th ***(Sub-state 1.1)***
James: 19th march, next Thursday. It is a short time, but we have not much, much time, After all contributions have been received, the draft version, that partners 1 and 2 is going to write is and is going to send for comments will be same day, 22nd of march

[Can hear whispering in the background]
James: it is next Tuesday I believe
Paul: 2nd is Friday.
James: its Friday, yes, um after that we have a very short time to make the final review from all partners and the reception of comments is better for the 28th of march ***(Sub-state 1.1)***
[Annie and Christopher have a smile on their face]
Ronnie: 28th will be ok because many of us will be in Madrid for the visibility conference ***(Sub-state 1.1)***
Fabian: ok ***(Sub-state 1.1)***
Ronnie: so, we will have some problems to look at the data for the 28th ***(Sub-state 2.1***
Fabian: ok ***(Sub-state 1.2)***
[Desmond and Paul are talking]
[Fabian shows something to Jack]
James: This proposal is in order to, to have all final programs from all partners
[Can hear whispering still]
James: to submit the deliverable, the technical deliverable around [pause] 4th of April
Ronnie: yes regarding this, I have a, a question ***(Sub-state 1.1***
James: yes ***(Sub-state 1.1)***
Ronnie: Do you know who, who is our project officer?
Jack: yes, FJ ***(Sub-state 1.1)***
[Fabian nods his head] ***(Sub-state 1.1)***
Fabian: FJ ***(Sub-state 1.1)***
Ronnie: This is the project officer? Because this is the new one is it
Jack: no, no, F J is from the beginning ***(Sub-state 2.1)***
[Fabian nods his head] ***(Sub-state 1.2)***
Ronnie: from the beginning?
Jack: yes ***(Sub-state 1.2)***
Ronnie: I did not know whether they have changed it
Jack: as far as I know no. ***(Sub-state 2.1)***
James: we have received some private information, this week
Jack: not this week ***(Sub-state 2.1)***
James: we will let you know this particular information.
[Someone says thank you]
[Elsie puts up her hand]
Elsie: I have a question, um for the dissemination plan that you partner 7 is responsible for to transfer, I would like to know when exactly you need to see this, to see our contribution, because as Ronnie said next week we are going to Madrid, so if it has to be done before, and all participants have to contribute, I would say to send it to my email, so that I can work on it during the weekend, or something.
James: Ok, I might, from my personal view is that you might need some contribution in order to write in your document. ***(Sub-state 1.1)***
[Elsie nods her head] ***(Sub-state 1.1)***
James: so [pause] you find that this task
[Hazel laughs]
James: but in any case we must do take advantage of this, this advantage like, you have to travel to Madrid?
Elsie: u-huh, yes ***(Sub-state 1.1)***
James: so we must, do [pause] what's better, um we invite you if you have time to visit our offices in order to see and understand what we are doing
[Whispering in the background]
James: and to see contributions of all partners
Elsie: well, we have to find a day
James: So the meeting in Madrid is for when?
Elsie: we are leaving
Ronnie: 20 to 23
Elsie: to Sunday, Wednesday to Sunday ***(Sub-state 1.1)***
James: Ok ***(Sub-state 1.1)***
Morris: I thought the submission was due for May or June?
Ronnie: we are talking about questionnaire now
Morris: yes ***(Sub-state 1.1)***
[Can hear whispering]
Jack: It is for month six, this march
Morris: oh, right ***(Sub-state 1.1)***
Fabian: we have to take in mind, it is very important that deliverable, that the project officer thinks that this is [pause] um not well planned, so that we do have a complete plan for the dissemination or exploitation we will make a review of the project
[Elsie nods her head] ***(Sub-state 1.1)***
Morris: that is what
Fabian: and it might lead to the end of the project, so
[Some reaction from the partners]
Fabian: So, it is important, it is an important deliverable
Elsie: yes ***(Sub-state 1.1)***
Ronnie: so,
Jack: I would urge partners to send users
[Kenneth is whispering in the background]
Jack: of there
Ronnie: you should elaborate on what they should receive, not more than that.
Jack: sorry
Ronnie: we should elaborate what we receive, not more than that, because the deadline must be respected
Paul: so when is that? When is the deadline?
[Elsie tries to speak]
Ronnie: by lets say Tuesday, Tuesday yes
Morris: or tomorrow
[Laughter from the team members]
Paul: or yesterday
[Laughter again]
Ronnie: She was supposed to be my personal assistant in Madrid but I would send her free, and she will be able to work on this very well. So, we will see. We say by Tuesday because on Wednesday she is leaving. She is leaving Brussels for Madrid
[Some laughter]
Jack: ah, ok, yes, yes ***(Sub-state 1.1)***
[Can hear whispering]
James: Ok, so all project partner must, it is a critical important deliverable, and you must comment. For your conclusion we can pass to the next item in the agenda. ***(Sub-state 1.1)***
Fabian: So, thank you for listening.

[Hazel laughs]
Hazel: I am trying to help.
[Laughter again]
Hazel: I am trying to be your assistant
[Everyone is getting ready for the coffee break, which is at 11.25am]

Proposing a change in the agenda

Ronnie: Can I interrupt you for a minute
Fabian: Yes of course ***(Sub-state 1.1)***
Ronnie: this um last item it takes us to a connection, it is a connection with some work we have done
[Whispering between Kevin and Lucy. Cannot hear what was said]
Ronnie: in package four.
Fabian: uh-huh ***(Sub-state 1.1)***
Ronnie: I did not see on the agenda any indication relating package 4, so I would like to propose that we [pause] more or less try to take the effort, because we have work [pause] on the concept. We would like to give some information on this as well.
Fabian: Ok ***(Sub-state 1.1)***
Ronnie: Ok ***(Sub-state 1.1)***
Fabian: Ok ***(Sub-state 1.1)***
James: Ok we are going to consider the proposal. My name is James, I am from partner 1. I think it would be better to decide in this moment where we can introduce this discussion regarding work package 4. This afternoon would it be possible to have a small time? ***(Sub-state 1.1)***
Hazel: Yes ***(Sub-state 1.1)***
Lucy: Just after one
Hazel: uh-huh ***(Sub-state 1.1)***
Lucy: before the coffee break.
Annie. Or you can do it first?
Ronnie: I think, I am not sure, but I think it would be interesting ***(Sub-state 3.1)***
Fabian: Ya ***(Sub-state 1.3***
Ronnie: to put it after the creation of the tables
[Can hear whispering in the background. Cannot hear what is said]
Ronnie: Maybe from the technical point of view it should be... what do you think about it?
Hazel: Tin of sardines
[People seem to be having their own discussions]
Ronnie: yes ***(Sub-state 1.1)***
ames: one of you is in directive, so why don't you connect the work
[Everyone seems to be having their own discussions]
Ronnie: whatever you wish, it is not difficult for us ***(Sub-state 3.1)***
James: Is it possible after 1.1?
(Sub-state 4.1)
[People have their own discussions – cannot hear what is being said]

Review of work package 2

Jack: Shall we continue, and after that there is a demo of voice solution
Annie: yes. Thank you, my name is Annie, I am from the partner 2. Yes, as Jack said we will review what we have been doing in workpackage 2, and feel free to interrupt me as you feel you need. ***(Sub-state 1.1)***
[Whispering in the background]
Annie: So, work package 2, [pause] was about studying the screenreader, that [pause] the screenreaders that we have available on the market and how would they would um interact with the um [pause] Comploabaras plug in. Now, we have been studying the screenreaders, that we have on the market and basically jaws and how it work, how they interact with the user and how they read pages and what um problems they face when the users are um [pause] sailing the web. We have also made a study of the screenreader in
[Whispering]
Annie: between Java and Jaws. Because we intend to use Java for our development. Then we tested, we made some technical test on screenreaders integration, like how, do we have to turn them of, because they seem to detect that we have technical problems between the plug in and reach the voice [pause] technical part that we have
Paul: sound card
Annie: sorry
Paul: sound card
Annie: yes, sound card, well to use the resource of your machine ***(Sub-state 1.1)***
[Someone said uh-huh in the background] ***(Sub-state 1.1)***
Annie: so they cannot work together, the user must be able to choose which one, is he going to use when he is um [pause] when reading a webpage. And we made a state of art of voice integration in general, which is a study of the products available in the market, like Coversa, ibmsolution, Nuance, and so on. Um, how this solution they provide to the users, the advantages that they have, and to see what we could do according to this solutions.
Hazel: Can I just ask Annie, what do you mean by voice integration? Is that voice input?
Annie: yes, it is voice input and output. ***(Sub-state 1.1)***
[Christopher tries to speak as well, saying it is voice input and output]
Hazel: yes, thank you ***(Sub-state 1.1)***
Annie: Yes sorry.
Hazel: No that is fine. ***(Sub-state 1.1)***
Annie: and, yes
Ronnie: I do not know if this is the right time to say this, or ask you this, you say that you have made an evaluation of a [pause] of the characteristics according to the user needs. Was it a theoretical evaluation or did you have the possibility to make a
[Hazel is whispering something - cannot hear what is being said]
Ronnie: [pause] some, some clarification, some trials?
Annie: No, I am afraid I did not, I did not explain that right ***(Sub-state 2.1)***
Ronnie. u-huh ***(Sub-state 1.2)***
Annie: What I mean is that we did reviews ourselves, as we are not visually impaired, we then ask technicians having using Jaws how they work and more technically, but not the user, from the feature the user point of view need to be, no. It is not to see what the visually impaired user would [pause] get from the Jaws. It is not from the users
Ronnie: Thank you very much
Paul: And you were only using Jaws, and not for example looking at the IBM homepage reader?
Annie: yes, but, but mainly with Jaws, but we have been looking at those available ***(Sub-state 1.1)***
Paul: which ones? I am sorry to be insistent?
Ronnie: can we have a list?
Annie: yes, yes, because everything, all that I am talking about is written on the documents which we have in our dossier, but I am afraid it is being translated, so I am sorry it is not yet ready, but it might be as soon as possible. So ***(Sub-state 1.1)***
Ronnie: Do you remember how many of these things that you tested?

[Christopher and Annie have a brief conversation in Spanish]
Annie: we have tested homepage reader and two versions of Jaws ***(Sub-state 1.1)***
[Christopher is whispering something to Annie while she is talking]
Annie: In our previous meetings, we asked you to see which was mainly the [pause] screenreader used for the final users, and since you all agreed that Jaws was the one, we thought this was the one
[Discussion between Hazel and Kenneth]
Annie: and also Desmond sent us some, a list of things to download and our technical people are working on those.
Desmond: yes. ***(Sub-state 1.1)***
[Own discussions taking place - cannot hear what is being said]
[Christopher and Annie talk in Spanish]
Annie: Also the IPT people just told us, that they are having some trouble, um trying to find out, a trial version
[Some own conversations taking place]
Desmond: I do not think that an NT version is available as a demo
Annie: uh-huh ***(Sub-state 1.1)***
Desmond: I think it is a problem, yes ***(Sub-state 1.1)***
Jack: our technical [pause] guys just called us and how they can reach this demo version
Desmond: I can ask the representatives, to give us a demo version, but I have not found this
Annie: in German
Hazel: you are a lip reader
[Everyone laughs]
Desmond: There is no existing version available in English
[Own discussion-taking place]
Desmond: It only makes sense in co-ordination with web wizard, you know
Annie: with web wizard
Desmond: with web wizard, yes ***(Sub-state 1.1)***
Annie: we are not ware of that ***(Sub-state 2.2)***
Desmond: a demo is just a screenreader
Annie: yes ***(Sub-state 1.1)***
Desmond: and a web tool of course is the demo, is the web wizard, it's some text, an output system
Annie: uh-huh ***(Sub-state 1.1)***
Desmond: and reader along with the speech output
Annie: aahhh ***(Sub-state 1.1)***
[Own discussions]
Paul: It is like a virtual cursor in Java. It is the content of the website in a separate window so that it can go through in, in a almost word processor
Desmond: It is like the web formatter, I do not know, for Brindows, it is
Paul: We mentioned all those in
Annie: yes, yes ***(Sub-state 1.1)***
Paul: in London
Annie: yes, yes ***(Sub-state 1.1)***
[Some own discussions taking place]
Annie: and [pause] the second part of work package 2 was to study how Compolabras synthesises text t speech, whole text and html tags, and about the speech recognition
[Ronnie is whispering - cannot hear what he is saying]
Annie: and also explaining the different features that the plug in provides, like choosing the type of voice that you can have for your pages, for the text, the speech, but you will see this later on in our demo, and plus we have our initial draft of what we need to provide for output for our work package, and it is being filled up with a couple of screens, and it will be available on ftp site, as soon as we can.
Desmond: uh-huh ***(Sub-state 1.1)***
Annie: but more or less all of the documentation's is already available.
[Pause]
Annie: Plus we would like to say that um it was very useful for our screenreader analysis, a set of questions which was provided and answered by partners 6 and 5, it was very useful for us
[Desmond nods his head] ***(Sub-state 1.1)***
[Whispering in the background]
Annie: and we also have a set of questions concerning the web authoring tool, that might not be really useful for work package 2, but certainly for work package 3
[Christopher says work package 3 quietly - he nods his head as well] ***(Sub-state 1.1 x 2 evidences, verbal and non-verbal)***
[Whispering – people having own conversations]

Presentation of a demo

Annie: now I will show a demo now of speech recognition, that I
[Whispering]
Annie: that I want to make something clear, it is not, it is not going to be a sample of what an accessible web pages, it is just a technical demo for what you can get from [pause] a speech recognition system. But, I mean in voice navigation, but it is not completely accessible or going to be a draft for the navigation system we will have for the web-authoring tool.
[Can hear whispering]
[own discussions taking place]
[Demo starts – can hear voice output]
Annie: begin [Annie is using voice input in order to tell the webpage to react in a certain way]
Annie: begin [this is said agai as nothing happened the first time round]
[own conversations taking place]
James: technical difficulties
Annie: It was not ***(Sub-state 2.1)***
[Laughter from everyone as it was not working]
Annie: the window did not have it, ok. Begin
[Can hear speech output from the system – this is based on the input word begin which Annie said. The information, which was said, was to do with a description on what the Internet offers]
Annie: Description [This is the second word Annie used as voice input in order to interact with the system]
Paul: I cannot hear
[Can hear speech output from the system – this is based on the input word begin which Annie said. The information, which was said, was to with what is available on the page]
Annie: Forward [This is the third word Annie used as voice input in order to interact with the system
partner 7
[Did not hear any voice output for when Annie used the word forward as voice input into the system]
Hazel: How did you know to say description?
Annie: yes, that is a question, just,
[Can hear whispering]

Annie: first describe the grammar
Hazel: yup ***(Sub-state 1.1)***
Annie: with the [pause] with the key words you are using. So, it is true the user must know the grammar
Hazel: uh-huh ***(Sub-state 1.1)***
Annie: that he is going to use
[Uh-huh said in the background] ***(Sub-state 1.1)***
Annie: he is going to use, it will not recognise next,
Hazel: yes ***(Sub-state 1.1)***
Annie: and so on
Hazel: hmm ***(Sub-state 1.1)***
Annie: so you have to train them, or tell them
[Can hear whispering]
Annie: but it must be a very simple command
Hazel: uh-huh ***(Sub-state 1.1)***
Annie: so you can remember it
[Paul click's his fingers]
Paul: Is this your own system or a commercially available system that you are using?
Annie: No, it is our own system. The Compolabaras plug in ***(Sub-state 1.1)***
Paul: No, I mean, the voice input. Is that, is that also part of compalabaras? ***(Sub-state 2.1)***
Annie: the recognition you mean?
Paul: yes ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Ronnie: no, no, the voice ***(Sub-state 2.1)***
Annie: voice?
Paul: no, no the input ***(Sub-state 2.1)***
Annie: I do not know? ***(Sub-state 3.1)***
[Hazel laughs]
[Mary whispers something - did not hear what she said]
[Hazel whispers something as well to her neighbour Kenneth]
Annie: this was our idea, we used part of this and the plug in. Is that what you are asking?
Paul: no, no ***(Sub-state 2.1)***
Paul: what I am trying to get at, is this the voice-input system for speech recognition? Um, if you are using own, and if so why, because I mean what you are doing is, is [pause] is been done with, for example [pause] Dragon.
Kenneth: uh-huh ***(Sub-state 1.1)***
Paul: Dragon is a commercially available system which works quite well.
[Can hear whispering]
Paul: Why then do you develop your own? Coz Dragon for example works seamlessly with screenreaders.
Ronnie: Are you using ViaVoice?
Annie: yes ***(Sub-state 1.1)***
Can hear whispering]
Christopher: yes we were clear ***(Sub-state 1.1)***
Annie: yes, IBM ***(Sub-state 1.1)***
[Christopher tries to talk as well]
Christopher: I thought we had an agreement
Annie: because it is not only voice recognition system, we are also navigation. We are integrating our, our voice input with our
[Hazel is whispering something to Kenneth]
Annie: voice navigation system
Paul: ok that's what I wanted to, ok ***(Sub-state 1.1)***
[Paul looks frustrated]
[Ronnie and Paul say something amongst themselves and they both laughs. Kevin joins in with the laughter as well]
[Hazel and Kenneth whispering]
Annie: We have shown a simple sample of speech recognition would be like
[Hazel and Kenneth still whispering]
Annie: and we will show you a sample of speech synthesis
[Hazel and Kenneth still whispering]
Annie: available. We have downloaded it from the Internet, and we have used it on the webpage, in both in the Spanish and English version Now I will show a Spanish version, I mean a version. Ah, um in the image you can see a page which has a girl on [can hear speech output describing the sample which is shown]
Annie: This is an example of how you could use speech output, um
Ronnie: um, can you ask it to say it again?
Annie: yes ***(Sub-state 1.1)***
[Someone laughs]
[Kenneth is saying something to Mary]
Annie: yes, it is voice. [Can hear speech output again. It is speech describing what the sample will show using the Compalabaras plug in]
Annie: so you have here, you have here a form field, and I have used a tab key [can hear speech output. It says enter your key]
Annie: I am, I am putting the focus on a place, where I have to enter my name. It says it, so I know I have to do it. And, I know that Hazel that you were saying now bad
[Hazel laughs]
Annie: I know, I know, but if you are right, it is not a sample of, it is not accessible of course But
Hazel: uh-huh ***(Sub-state 1.1)***
Annie: it is a simple sample of how it would work. So, when I move tab again, I can move to the next field. [Can hear speech output. It says to enter in your address]
Hazel: At least it is tagable?
Annie: yes, ***(Sub-state 1.1)***
Hazel: but not mouse
Annie. there is something missing, but it will need whole change
[Whispering]
Morris: excuse me, are you entering? If you cannot speak it
Annie: not in the sample ***(Sub-state 2.1)***
Morris: How do you, how can you put the cursor in by the text?
Annie: how [pause] with a tab key
Christopher: yes ***(Sub-state 1.1)***
Morris: with what?
Annie: tab key [said slightly louder this time]
Christopher: yes ***(Sub-state 1.1)***
[Whispering]
[Can hear speech output again]

Annie: Here is a [pause] drop down window.
[Can hear speech output again – we will send you the information you want. Thank you]
[Whispering]
James: So, this is an example of an accessible webpage, and how the voice can improve the interaction and to communicate with the webpages.
Annie: yes ***(Sub-state 1.1)***
James: this technology is currently used, in a technical way
Annie: yes ***(Sub-state 1.1)***
James: it is for all webpages? Is it possible to see the possibility of voice to increase the ineractivity for people?
Annie: yes ***(Sub-state 1.1)***
Paul: yeah ***(Sub-state 1.1)***
Annie: I will now show you a demo in Spanish. So, you can see that it is multiple language. We only have English and Spanish version [Can hear speech output in Spanish]
[Mary says something to Kenneth in a whisper]
Annie: yes, well, here we have, we are going to make a, a example in Spanish, of the plug in synthesis system. And, um [pause] here you can see how Compalabras is dynamic. It is not like screenreader. Because it has many pairs, not just plain text
[Jack whispers something to Thomas]
Annie: it is not a real webpage, I still do not have a clear, um an input page which asks you to write a message, and I am going to write something in Spanish.
[Paul clicks his fingers again]
Annie: requirements for the message? And I will ask him to read a cover [Can hear speech output in Spanish]
[Laughter]
Fabian: it says I like the beach
[Laughter again - Elsie, Christopher, Charles, Morris and Fabian]
Annie: and you can write any text in here
[Can hear speech output again in Spanish]
[Paul clicks his fingers]
[This is not acknowledged and Annie continues with her presentation]
Annie: yes, yes, in this image we have a woman who says something when I drag the mouse over him [can hear speech output – speech is in Spanish]
Annie: I can stop, I can [pause] stop the reading, I just place the mouse outside the image [Can hear speech output]
[Whispering]
Annie: so, you kind of have some control over the text. Um [pause] here I will show you how you can choose the gender and the age for the voice which is going to be the output. I will write another message
[Whispering]
[Morris and Ronnie laugh]
Annie: I will use a female gender, and [Can hear speech output in Spanish]
Annie: and if I choose another type of voice [can hear speech output in Spanish]
Annie: and a child voice [Can hear speech output in a child's voice]
Annie: well it is a cleaner voice
[Laughter]
[Can hear the speech output in the child's voice again]
Annie: so that will be the, how you can select and customise voice output
[Paul looks fed up]
Annie: yes
Paul: This is all very interesting, but I mean, we [pause] already know all that. That is already there, so what have you, you for example, do all this changes by voice control, or I mean use the different elements on the screen by voice control. But this is just, this is [pause] you know, our daily bread and butter. At least it is for blind people, that is what we are doing all day. ***(Sub-states 1.1 and 2.1)***
Annie: yes, well, not, I know, I think, um, I do not know how you work, but I think we are trying to show how screenreaders are ***(Sub-state 1.1)***
[Whispering]
Annie: just, it is just different screenreaders that is what I am trying to show. Because screen reader only reads plain text, that is all it is
Paul: no it does not, no it does not ***(Sub-state 2.1)***
[Pause]
Annie: but it does not interact with the user
Paul: where is the interaction here? I do not see the interaction ***(Sub-state 2.1)***
Annie: because, it depends on the different things I do, the plug in, because if I am in, in [pause] focus, it is allowed where I am in and if I entered the right [pause] text. It will tell me it is right, it will tell me, you can [pause] define the things that page, that the page wants to react, according to the input, but
Desmond: it's a xml feature?
Annie: yes ***(Sub-state 1.1)***
Desmond: hmm-hmm ***(Sub-state 1.1)***
Annie: and it helps you to control that
James: In any case the demo that we will be looking at the end of this, for, for speech recognition, I do not know, or it could be possible to see it. What we are trying to show you at the moment is the voice capabilities that after
[Annie is whispering something to Christopher]
James: some additional work can be used by [pause] Internet people to [pause] facilitate their access. Um, this is not a sample of accessible, it is how the voice technology can be used.
[Whispering]
James: This is not the final version
Paul: we realise that, but I mean, what you are demonstrating here is something, which is already available ***(Sub-states 1.1 and 2.1)***
[Whispering]
Paul: just look at [pause], maybe you think I am stupid, sorry
[Annie and Christopher whisper]
James: Perhaps there has been a bad explanation for, for us
[Whispering]
James: What is clear is, we would like to remind that, in this moment we have a short different demo that try to show the functionality of voice xml.
Paul: yes, I realise that ***(Sub-state 1.1)***
Ronnie: whatever you have, please do not take this as a strong criticism, but [pause]
James: yes ***(Sub-state 1.1)***
Ronnie: whatever you have developed, we have not understood and ***(Sub-state 2.1)***
[Whispering]
James: We decided to present the small [pause] a plan we have got inside our, in order to get your comments and [pause] critical
Ronnie: we cannot make any comments ***(Sub-state 2.1)***
[Paul puts his hand up]
Annie: no ***(Sub-state 1.2***
Paul: can I, I go to a web address and try this out
Annie: yes ***(Sub-state 1.1)***
Paul: switching of my screenreader
Annie: yes ***(Sub-state 1.1)***

Paul: and is there a web address where I can try this out?
Annie: yes, yes, the Comploabaras web. But Paul, I just wanted to say something. You are completely right, the technology is there. But what is not there, is this application of voice technology ***(Sub-state 1.1)***
[Whispering]
Annie: to provide an added value to the screenreader, which can be used as a plug in. But maybe it is useful
[Whispering]
Paul: What you have been doing, I can do with my screenreader, can do ***(Sub-state 2.1)***
[Whispering]
Paul: For this time being, I do not see, [pause] I do not see any progress from what we already have
Ronnie: This is the reason why we are ***(Sub-state 2.1)***
Annie: what
[Mary is whispering to Hazel]
Ronnie: please do not take it as too strong a criticism, it seems you are not completely aware of what blind people are doing using a screenreader
[Kenneth is whispering to Hazel]
Annie: this is what, what we
Ronnie: you cannot develop something without knowing where to start
Annie: yes, I know, I know, that is why we have the requirements from the users point of view, but, but, the plug is is not supposed to replace your screenreader. So when you say that you use your screenreader ***(Sub-states 1.1 and 2.1)***
Paul: so you are filling in a form, right
Annie: yes ***(Sub-state 1.1)***
Paul: and that is something that I do everyday, I am filling out forms on the Internet
Annie. but is it not hard for you? Filling forms using screenreaders?
Paul: no ***(Sub-state 2.1)***
Annie: Because that is what we thought, and that is what everyone says. At least
[Whispering]
Paul: who are you talking too?
Annie: well, I [pause] Hazel, did you not say that filling forms was [pause] hard and that would be a good sample to show how to help
Hazel: but
Annie: I thought, but maybe we were misunderstood
Hazel: I think I said the opposite in fact at the London meeting, that you have to be careful that screenreaders can do these things ***(Sub-state 2.1)***
[Paul clicks his fingers]
Hazel: can do these things, now
Kenneth: so long as the forms are set up ***(Sub-state 1.1)***
Hazel: uh-huh ***(Sub-state 1.1)***
(Sub-state 5.1)
Kenneth: in a way that works with the screenreaders
[Whispering]
[Charles puts his hand up]
Charles: There is one thing, which is possible with Compolabaras as a screenreader and what is can do. So, for example when you fill in a form
[Whispering]
Charles: and when you tab to the send key
Lucy: uh-huh ***(Sub-state 1.1)***
Charles: compalabaras and the functions, which are available for it
[Whispering]
Charles: can [pause] prompt for confirmation, confirmation and repeat your answers, before it
Hazel: ok ***(Sub-state 1.1)***
Charles: can submit your answers
Mary: oh, right [Mary nods her head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Charles: that is what screenreaders can't do
Hazel: ah ***(Sub-state 1.1)***
Mary: mhhh ***(Sub-state 1.1)***
Hazel: so, I think you need to be very precise about what [pause] the new system can offer. That is what I asked you before, how did you know to say [pause] description I think you said
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: that
Annie: yes ***(Sub-state 1.1)***
Hazel: your system could
Kenneth: hmm ***(Sub-state 1.1)***
Hazel: you could offer
Annie: ok ***(Sub-state 1.1)***
Hazel: that a screenreader could not offer, to tell the user you can now
Annie: yes, you can have that in your page***(Sub-state 1.1)***
[Can hear Ronnie whispering]
Annie: have
Hazel: uh-huh, uh-huh ***(Sub-state 1.1)***
Annie: somewhere at the beginning of the page it tells you
[Can hear Lucy whispering]
Annie: you can say description together
Hazel: yes ***(Sub-state 1.1)***
Annie: further description of the image
Hazel: yes, yes ***(Sub-state 1.1)***
Annie: but we have not developed that
Hazel: yes ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: but you could presumably
Annie: no, no, of course
Hazel: right
Annie: that would be very easy ***(Sub-state 1.1)***
Hazel: hmmm ***(Sub-state 1.1)***
Annie: of course your pages must be accessible
[Ronnie is whispering]
Hazel: yes, of course. I appreciate that ***(Sub-state 1.1)***
[Whispering]
Desmond: well as far as I understood it, the difference between those two solutions, is the screenreaders are using Compalabras plug in and the screenreader is always setted up on a webpage, it comes from one side and
Annie: yes ***(Sub-state 1.1)***
Desmond. and the solution for the Compolabaras is in the webpage

Annie: yes ***(Sub-state 1.1)***
Desmond: because as I understand it it is not [pause] something compalabaras delivers. It is something that maybe xml standards deliver
[Whispering – Jack speaking to James]
Desmond: Do you understand what I mean?
[Kenneth is whispering to Hazel]
Desmond: with the kind of coding, you cannot do it with compalabras. The recognition for example of all the tables, or formula of these things, it does not produce an end code to tell me that
Annie: yes, yes
Desmond. a formula
Annie: yes, it does ***(Sub-state 1.1)***
Desmond: yes, it is not compalabras telling me there is a formula ***(Sub-state 2.1)***
Annie: No, compalabras is interpreting it through the voice xml tags ***(Sub-state 1.2)***
Desmond: yes ***(Sub-state 1.2)***
Annie: yes ***(Sub-state 1.2)***
Desmond: ok. That is the difference, a screenreader recognises that ***(Sub-state 1.2)***
[Hazel whispering to Kenneth]
Desmond: in the same way
Annie: yes [Annie then says something to Christopher] ***(Sub-state 1.1)***
Desmond: ok ***(Sub-state 1.1)***
[Fabian and James whispering]
[Paul clicking his fingers]
[Some own discussions taking place]
[Paul clicking his fingers again]
[Paul clicking his fingers again]
[Paul clicking his fingers again]
[Paul clicking his fingers again]
Desmond: Paul wants to say something
Paul: my question is, hopefully sometimes many pages will be, if the pages are set-up according to WAI standards in html, they are rendered accessible by screenreaders. Now, in order to [pause] give this extra functionality that, that voice xml provides, that means that the pages have to be [pause] prepared for that. Now will developers of web content actually go so far and do that, and conform to WAI standards and html? Plus add some extra um [pause] voice xml features. Because is that really realistic? That is one question. The second question that I have, and that as far as my understanding of this project is that we want to try and place this extra functionality that voice xml offers, into particularly e-learning situations where it would make maybe e-learning experience more [pause] profitable and beneficial. So, isn't that the way [pause] that things should be going in this project, or do you actually for free that a majority of webpages will be [pause] um fitted out that way, with the necessarily voice xml tagging?
[Annie nods her head and looks at Christopher] ***(Sub-state 1.1)***
[Christopher and Annie and whispering to each other]
Annie: yes, if you do not have voice xml tagging, the plugin will work, but will be the same as the screenreader does, but if you [pause] want your developer to create webpages with voice xml, then they will have to [pause] what they foresee is that they will have to use the web authoring tool they intend to create for this project. And, it will help them for example to add [pause] an image to the page, and will make that image accessible according to the way recommendations, and it will say aloud, something, a description of the image, and it will make easier for the developers to make a [pause] this page um accessible, the web authoring tool that we are going to develop. ***(Sub-state 1.1)***
[Kevin sitting with his arms on the table]
Ronnie: I would like to, [pause] very humbly suggest to you, to actually get in contact with the [pause] um, hompage, they have a technical button and they will be able to show you um home in your own language, and um, in your
[Whispering]
Ronnie: living-working reality, what blind users are able to do with screenreaders
[Whispering]
Ronnie: how far are we able to use um and to work with screenreaders and after that you can take the second step of your work
[Whispering]
Ronnie: And the second step is [pause] to apply, is to apply to [pause] v xml and then, and then to add Compalabras, then, I am a very ignorant person, but I think this is the process that one could do. But, now, if you plan for example to show, show this, um [pause] prototype
Annie: but this is
Ronnie: during, um and meeting with the commission, I would really suggest you not to do so
Annie: but, but it is not a prototype of the web authoring tool, or what an accessible webpage is going to be, that is what I am saying. This is a prototype of what the technology ***(Sub-state 2.1)***
[Whispering]
Annie: is offering
Ronnie: yes, but you are showing ***(Sub-state 1.1)***
Annie: yes
Ronnie: us something we know really well, like I said we are experts and we see those daily, we work with these things, we work with them really well ***(Sub-state 2.1)***
Annie: no, but I am trying to show you the compalabaras plug in, which is the thing that [pause] um being developed and focussed on, in work package 2 and um it is what we thought you wanted to see ***(Sub-state 2.1)***
[speech output can be heard – partner 2....]
Annie: it is not, I know, sorry, you are used too voice applications with input and output
[Translator translating for Michael]
Annie: but what we are trying to show you is how compalabras, our plug in is being developed. But it is, I do not know
Paul: well don't you see that we are not really, or maybe it is just me, we are not really getting something different, because this, and this is something, that I realise that voice xml tags that they drive Compalabras, but this is not really anything that we have not done or seen before, so you should really, what we would like to see, or what I would like to see ***(Sub-state 2.1)***
Annie: uh-huh [smiles as well] ***(Sub-state 1.2)***
[Fabian is biting his nails]
Paul: where is this [pause] where you work with voice xml and compalabras, actually goes beyond what we already have
Hazel: hmm. And I think this is something we really need to continue the user requirements work ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: because as you will see when I talk this afternoon, none of the people we have talked to have any experience of e-learning, so we need to have something to show to people
[Mary nods her head in agreement] ***(Sub-state 1.1)***
Hazel: it only needs to be very small, something like this, but something which makes it clear what the project will do, which the screenreader doesn't do
Paul: right, yes, exactly ***(Sub-state 1.1)***
Ronnie: And there is another aspect, very important, to access e-learning sites
Ronnie: or to elaborate e-learning sites. You must have the accessibility, you must have to solve it, the problem of accessibility or the universality should I say, over
[Desmond explains something to Kevin – Paul then joins in as well]
Ronnie: because e-learning, e-learning sites are different, one for each other. So you will, you will, may find a lot of different, a lot of different approaches, and lots of different ways to, ways to approach the problem.
[Whispering]

So, the problem with access sites has to be solved in advance
[Fabian is still biting his nails]
Hazel: No, I think, with respect Ronnie it is a little bit harsh, that you cannot solve that huge problem ***(Sub-state 2.1)***
Ronnie: with that percentage I would say
Hazel: well, no, no I think what the project should try and do is show what the solution could be, for other people. You do not have to go out and solve all of the access problems
Paul: no ***(Sub-state 1.1)***
Hazel: before, before you begin. Perhaps I misunderstood. But I think
Ronnie: what I was saying
Paul: the potential
Ronnie: what if we do that
Hazel: yes, ok ***(Sub-state 1.1)***
Ronnie: anyway this is a research project
Hazel: hmmm ***(Sub-state 1.1)***
[Christopher whispers something to Annie]
James: so then [pause] according to this project, the communication should be, work package 1 – user requirements and work package 2 –
[Paul whispers something to Desmond]
James: and improvements, I do not know – shall we implement today a decision or to follow the scheduled plan before? Basically the idea is that the demo today is only about a possibility of this kind of ideas, and the user that may have not a clear idea of what is on offer by Compolabras more than screenreaders
[Hazel nods her head] ***(Sub-state 1.1)***
Hazel. we need to try and
James: So it is necessary to have a [pause] preliminary idea of this at least [pause] before to make a webpage of partner 7 accessible.
Ronnie: yes, yes but if we go to the evaluation to the commission [pause] the commission will come to the user ***(Sub-state 1.1)***
James: yeah ***(Sub-state 1.1)***
Ronnie: and say what is your view about the progress of the project
James: yeah ***(Sub-state 1.1)***
Ronnie: and when we do not know what to say, we will have to be quite silent
Hazel: yes ***(Sub-state 1.1)***
Ronnie: and if we are silent, the, the project breakdown
Hazel: yeah ***(Sub-state 1.1)***
James: This is, um sorry? To identify the kind of action we need to take, in order to develop in this three-month space
Ronnie: I, um what are you suggesting first of all, to try to get acquainted with the reality
[Whispering]
Ronnie: because apparently, apparently you are not completely acquainted with those who are developing the things The, the, the whole cluster of the reality with at least there seems to um, us. [pause] maybe we are wrong?
[Hazel is doodling on a paper]
James: no ***(Sub-state 2.1)***
Ronnie: No, no communication. But you must be aware that for us the problem is there
James: ok, ok, but it is something very new and good, because at least we have three months to solve this equation ***(Sub-state 1.1)***
[Annie whispering something to Fabian. He nods his head]
James: It would be better if the day before the commission, it is clear that, it is important and that some modification has to be done, but [pause] in combination with several points of view. One of them, of course the user, or the technician what he has to do for the user, and answer the point of view of British partner, regarding how it is possible to improve this
Hazel: uh-huh ***(Sub-state 1.1)***
James: and this requirement workpackage.
Hazel: Can I ask this in a concrete way, which version of Jaws are you using?
[Christopher looks in a document]
[Whispering between Annie and Christopher]
Annie: Jaws 3.318 and Jaws 3.71.6
Hazel: okay ***(Sub-state 1.1)***
[Paul puts his hand up]
Paul: can I, I would like to say that
[Whispering]
Paul: [pause] not only when it comes down to the evaluation, but also down to practical usage, that I, I, um really think that um what we would like to see, what I would like to see, and especially what the commission would like to see is that you are not trying to
[Whispering]
Paul. to develop a server based screenreader
[Annie and Kenneth have their hand on their face]
Paul: That is not what we need. But what we really need is something [pause] something extra, something which enhances, for example e-learning content
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: uh-huh ***(Sub-state 1.1)***
[Fabian still biting his nail]
Paul: That is something that you really have to, have to demonstrate, to clearly demonstrate, especially to the users that, as I said, and as [pause] Ronnie said before this, and this is for us, this is for people who work with web stuff
[Whispering – think it is Michael's translator]
Paul: on a daily basis. They suggest that this is old hat and we would like to see something new, and we would like to see something that [pause] helps, that [pause] furthers our [pause] appreciation of [pause] especially, I think we should really focus on e-learning activities
[Uh-huh said in the background] ***(Sub-state 1.1)***
[Lucy had her finger in her mouth]
Hazel: I was going to say the same thing, in a slightly different way, what, what does this do with a form? Let's take the example of a form that is a bit of e-learning. So, what does this do with the form that Jaws 3.7 could not do? That is what we need to identify and build on
Paul: right, right ***(Sub-state 1.1)***
Hazel: And what could it be doing that Jaws 3.7 did not, um [pause] does not do? Or maybe it had be version 4 now
Paul: right ***(Sub-state 1.1)***
Hazel: ok. So that is [pause], because it seems to me that at the moment this is doing less than Jaw's 3.7 ***(Sub-state 1.1)***
Annie: yeah ***(Sub-state 1.1)***
[Some laughter in the background]
Hazel: which I know that is because it has not all been implemented, but it is not, it is hard to tell, because it did not echo what the user was typing in, which you would expect
Annie: right ***(Sub-state 1.1)***
Hazel: so, ok, I know that is just an implementation detail, but it makes it hard to say, what is the added value that we are getting?
[Whispering]
Hazel: and we cannot see what that is yet and we really need to concentrate the mind to find out. Because that is what, um for the work package 1 we [pause] if we cannot demonstrate it to the people with the actual working demo we have to [emphasis on the word have to] describe it to people. Because, that is where we are stuck at the moment.

[Whispering]
Hazel: that we are saying this will offer something more than your screenreader, but we are not sure what it is we should be saying
Kenneth: hmmm ***(Sub-state 1.1)***
Hazel: to people
Annie: hmm ***(Sub-state 1.1)***
Hazel: that this is what it should offer
[Kenneth and Michael are nodding their heads]
Annie: what you can do is download a trial from our page and we can give you guidance to use it, so you can see our add value by yourself
Hazel: yes, but at the moment, you cannot even tell us that, while we are here in the meeting ***(Sub-states 1.1 and 2.1)***
Kenneth: uh-huh ***(Sub-state 1.2)***
Hazel: so that is what we want you to
[Whispering]
[Mary asks if the plug in is complete]
[Some own discussions taking place. I think so]
Charles: there are a few things that Compolabaras screenreaders cannot do
[Fabian has stopped biting his nails]
[Someone says yeah] ***(Sub-state 1.1)***
Charles One thing they have shown here was
[Whispering]
Charles: portal information as the data
Annie: shhhh
Charles: for a list of data, another thing is especially if you use voice xml, the JavaScript features here that if you can for instance offer more help to the user, you can for instance you can implement a help command.
[Christopher nods his head] ***(Sub-state 1.1)***
Charles: So that the user can hear what is expected for him, what command is available to him. Umm, or if the user does something wrong, he can re-prompt the user]
[Translating for Michael]
Charles: you can also adapt the help to the number of times he makes the same mistake [pause]. Those are things that voice screenreaders cannot do.
[Pause]
Hazel: So, we really need a list of these things
Annie: but also, we need a list of, because we do not know the user's point of view, so can give us, also the needs of the user ***(Sub-state 2.1)***
Hazel: the users have never used anything ***(Sub-state 2.1)***
[Whispering]
Hazel: like this
Kenneth: hmmm ***(Sub-state 1.2)***
Hazel: and until we have something to show them
Annie: and you are asking the technicians, ok, give me something
Hazel: yes ***(Sub-state 1.1)***
Annie: we do not know what to do and I will tell you that is what I want
(Sub-state 5.1)
[Hazel was about to speak]
Hazel: no, no ***(Sub-state 2.1)***
Annie: you see that
Hazel: no, you know what Jaws 3.7 can do now. We showed you in London ***(Sub-state 2.1)***
Annie: yes ***(Sub-state 1.2)***
Hazel: and you got it. Now what we need now is some ideas for what are you offering, that, that further to that, so we can say to the users, are these the kind of things that you need? And
Annie: hmm [This was not said very convincingly] We are not offering something ***(Sub-state 1.1)***
Hazel: but
[Laughter]
Hazel: you keep on saying that
Annie: I know, I know ***(Sub-state 1.1)***
Hazel: the project solution will do something and [talks louder now] we are trying to find out what it is
Annie: a technical solution, and that
Hazel: but it is too general as a technical solution, we cannot go to the users with that very, very, broad
Ronnie: Now the philosophy of the project is something very clear. The philosophy of the project is that someone has an idea and this idea is made practical is
[Translator translating for Michael]
Ronnie: is um something to touch and use
Annie: uh-huh ***(Sub-state 1.1)***
[Morris and Elsie are sitting with their arms folded]
Ronnie: and then the touchers and the users arrive and say [Oh it is good – This is said in a silly voice or no – this is said in a silly voice]
[Hazel laughs and nods her head]
[Some others laugh as well]
Ronnie: This is the view of the project. You cannot enter a room and say and as the user what will you need people
[Mary whispers something to Hazel]
Ronnie: because the people do not know exactly where they have to put their answer.
[Mary whispers something to Hazel]
Ronnie: So the philosophy of the project is, is to come with the project. And the reality of the project is to discuss, to test, develop together. The other way round is not productive, I am sorry for this.
[Hazel and Mary still whispering]
Ronnie: it is the project
[Paul clicks his hand]
Paul: if you tell us users what [pause] what voice xml can do, in addition to what we already get from our screenreaders, then we can maybe tell you that yes this feature would be nice, that feature will be nice
[Hazel and Kenneth nod their heads and say hmmm] ***(Sub-state 1.1 x 4 –spoken and non verbal evidence from 2 people)***
Paul: Or we do not need that. But you have to, you have to build on what is already there.
[Translator for Michael is translating]
Paul: So you know what current screenreaders can do and now you have to show us, the advantages for voice xml, which I am sure are there. But, I mean we are ignorant users.
[Hazel and Kenneth nod their head] ***(Sub-state 1.1 x 2 evidences, from 2 people)***
[Charles did not get to talk even though he put his hand up]
Hazel: So. partner 3 did the document in January listing the problems, and you can se those by using Jaws. So we need to know what [pause] what are you proposing to add to that
[Kenneth whispering]
Charles: I will just show text jobs, which
Hazel: right, right ***(Sub-state 1.1)***

Mary: hmm ***(Sub-state 1.1)***
Charles: they are the kind of things I had in mind. Um and would like some comment on that. I out that on the mailing list
Hazel: that's this
Charles: it's that one ***(Sub-state 2.1)***
Hazel: hmmm ***(Sub-state 1.2)***
Paul: which one was that?
Charles: its title is what voice can do for visually impaired
[Translator translating for Michael]
Paul: oh yeah, but that was only circulated yesterday or the day before ***(Sub-state 1.1)***
Hazel: yes ***(Sub-state 1.1)***
Mary: hmmm ***(Sub-state 1.1)***
Kenneth: oh right ***(Sub-state 1.1)***
[Hazel laughs]
Charles: I sent a first version at the beginning of February to the technical partners, I expected comments but I did not get anything
Ronnie: to get the xml portal to [pause] I did not get the opportunity to read it because, because I was not in the office but [pause] I do not think it is possible to read it now
[Kenneth whispering]
Ronnie: Maybe you should give to all of us a time to read the written research
Mary: maybe tomorrow?
[Hazel laughs]
Charles: It will be nice to have some comments now, sometime sooner
[Hazel laughs]
Ronnie: well I mean just now, let's break now
Annie: yes ***(Sub-state 1.1)***
[Individual chatter - Break for lunch. People started getting ready to leave the room]
Hazel. Charles maybe you can make a presentation this afternoon after lunch about your key proposals. I think we really need to discuss this at this meeting
Charles: yes ***(Sub-state 1.1)***
Hazel: perhaps some plans
Charles: This afternoon?
Hazel: yes, or tomorrow morning? [Pause] ***(Sub-state 1.1)***

Review of work package 1, questionnaire data gathered

[Tape 3]
Hazel: It was less than our target for this meeting, but it was not too bad, and it gave us some information. So, we received responses from Germany, 5 last week, and we had no information yet from Italy, or from partner 3, so we hope to have information from them very soon.
[Whispering]
Hazel: So we had responses, it was 10 men and 3 women, and the age and the educational range, that I was pleased there was a good range of ages and education levels of 19 to 54 years of age
[Paul whispering]
Hazel: and from the people who had the kind of educational qualifications around age 16
Ronnie: Can you repeat the age limit?
Hazel: yep 19 years ***(Sub-state 1.1)***
Ronnie: yes ***(Sub-state 1.1)***
Hazel: to 54 years
Ronnie: thank you
[Elsie nodding] ***(Sub-state 1.1)***
[Paul saying something to Kevin]
Hazel: So for people who were educated up to age 16 through to people who had university degrees
[Paul still whispering]
Hazel: and half of these people had university degrees and that was good. It was also good that we got information from six partially sighted people and seven totally blind people. Although 12 of the 13 people were blind from birth, so it would be good in future if we had people using [pause] asking to complete the questionnaire as we have some more people
[Ronnie is typing something into his Braille machine]
Hazel: who are not blind from birth and lost their sight later on. Because there are differences between these two groups of people. So I have just picked out some of the questions, which I thought, were interesting to mention today. One of the questions we asked people was about what areas they felt they were hindered in their education by their visual impairment.
[Whispering]
Hazel: because this question I thought was important because it might give us evidence what areas the e-learning which is done within the project should be targeting. I mean a lot of the user organisations in this project could have told us these things anyway, but to actually to have evidence for the commission that we have asked users about this. And because this is only based on 13 people it is just a beginning
[Christopher whispering something to Annie]
Hazel: it is not the kind of headlines, but hopefully next month I will have a look more information in. But, I want you to see the kind of argument I will be trying to build for the report for the commission. So, as one might have predicted, the areas where people said they had been hindered in their education by the fact that they had a visual impairment were very frequently the science subject, because of the problem of being able to
[Whispering]
Hazel: participate in physics and biology experiments, and to be able to see diagrammatic information. Also
[Whispering with quite a few people]
Hazel: we thought about the problems they had with diagrammatic and statistics
Kenneth: uh-huh ***(Sub-state 1.1)***
Hazel: because of the difficulty of the user being able to interact with the mathematical and statistical equations.
[Whispering]
Hazel: now it seems to me, one of the things we should be constantly holding in our minds, with the project is that can voice xml help with the interactivity that sighted people gain from e-learning and is currently difficult for visually impaired people
[Whispering]
Hazel: so, one of the problems of mathematics and statistical equations is that visually impaired persons if they are lucky has it all read out to the. But to actually to be able to interact backwards and forwards with parts of the equation and think how does fit together, what is the denominator, what is the numerator, what really is in the bracket, what is square, what do I need a square root of, that is still a big problem for visually impaired people. So, I just raised that is something the project can work on
[Uh-huh said by someone] ***(Sub-state 1.1)***
Hazel: obviously, mathematics and statistics is a specialised part of education, and so it is not for everybody, but it is an important part.
[Whispering]
Hazel: Similarly, people mentioned Geography for similar kinds of reasons but there were lots of them
[Whispering]
Hazel: lots of diagrams, lots of population, how much meat is produced, different countries, all that information is presented diagrammatically particularly for sighted people and we can interact with that diagram, we can look at it one way, we can find out if the diagrams show some production of

meat in all countries in the EU. The 15 countries of the EU. We can look at the diagram one day and say
[Whispering]
Hazel: France produced the most wheat of all the counties in the EU On another we look at it and think ah well, actually all the counties to the West of the EU produce the most wheat, or some other question we have [pause] the choice of sighted people to interact with that information in different ways. It is read out by a speech synthesiser
[James is whispering]
Hazel: and in one stream of text, you can stop it and start it, but you do not have the same flexibility So, that is another area So,
[Whispering]
Hazel: We also asked people what areas they would be interested in studying in the future, and I deliberately asked this in two different ways
[Whispering]
Hazel: in a questionnaire. I asked it in general
[Whispering]
Hazel: and I asked it specifically about e-learning, because I thought if people have not had any experience of e-learning, they maybe going to say I do not know what you can do with e-learning, because I do not know what e-learning can give me. But it will be interesting to know what people would like to study. Now, of course 13 people is a minute sample and I have a very strong suspicion that [laughs] people who were asked were friends of people in the project, because we have a very high proportion of people with
[Whispering]
Hazel: saying that they would like to learn xml and html
[Some laughter]
Hazel: and interacting with web design.
[Whispering]
Hazel: but this does not matter, because we need to demonstrate some e-learning with the project, and if we can think of people who are interested in learning these things with an e-learning system, I am not so worried at the moment, is that typical of entire population of visually impaired people in Europe? It [pause] if we demonstrate it is useful in these areas and think of other areas that would make me very happy So, people mentioned a lot of things in relation to computing, particularly in relation to the internet, and so html, xml and Internet, website design, interactive website design, databases, and how it works. But people also mentioned foreign language learning, interestingly people mentioned not only modern practical languages, but also ancient Greek languages like Hebrew.
[Fabian whispering to Annie]
[Mary laughs]
Hazel: I thought that Hebrew was particularly challenging it is not written with the Latin alphabet
[Mary laughs again]
Hazel: And it is not written left to write
[Someone laughs]
Hazel: so, that is an interesting challenge and whether that has anything to do with the project, I do not know.
[Mary laughs]
Hazel: and also astronomy, I thought that was very interesting
[Jack nods his head] ***(Sub-state 1.1)***
Hazel: because sighted people typically think of that as being a very visual, um area, um, many people regardless of their site status might be interested in learning about astronomy, and there are particular challenges about how to present that material non visually, to people. Ok, then we asked people about their experience with e-learning, and I think that is extremely easy to summarise because there was only one person out of the 13 so far who had any experience with e-learning and
[Whispering]
Hazel: had not been, so this is not surprising
Mary: mhh ***(Sub-state 1.1)***
Hazel: It has to be asked at this stage. So this is visually a very dull overhead because it shows us experiences with e-learning virtually none. And similarly interest in e-learning, now in scope of this questionnaire we did not give a very detailed description of what e-learning can be and what it can offer people, and we simply asked would they be interested and again, I think it is not surprising that we got a high level of interest.
[Elsie says something to Michael]
Hazel: I would not put very much weight on that, because if you say to people, oh we can offer you this new technology, they generally say oh yes I would like to try that. So, what I would really like, this is what I want to work on next is to be able to do this with more people, but acutally to give them something more concrete about what e-learning could be for visually impaired people. Then again we asked, in terms of e-learning, what might you be interested in studying
[Whispering]
Hazel: and then we got some similar answers, and some people just said well the same things I said before. The only new thing that came up, I am not sure why was environmental studies.
[Paul whispers something to Kevin]
Hazel: it probably has a lot of diagrams, maps and figures
Mary: hmmm ***(Sub-state 1.1)***
Hazel: Ok that is a very brief introduction to the survey. I think the survey is worth continuing with, I do not think that we could give much weight to the results from 13 people. Um, I regard that almost as a pilot, and right now I would like to refine questions we asked and add some kind of demonstration or description of how voice xml could help visually impaired people to access e-learning. But
Mary: yes ***(Sub-state 1.1)***
Hazel: this kind of survey is only going to answer rather high level general questions, about what topics people would like, what is there level of interest, it is not going to answer the specific questions we were getting bogged down with this morning, of exactly how voice xml [pause] people who have never tried e-learning are not going to be able to answer those kinds of questions. But I was pleasantly surprised, that it is a useful thing and I think the commotion, if we keep going and have information, if we have each user group partner and university and tries to actually get 15-20 people to do a slightly better questionnaire and then for the review we would have
[Whispering]
Hazel: and for the review aim to have 75 people. I think this will be interesting data perhaps.
[Whispering]
Hazel: Does anyone want to ask questions about that? Comments?
Hazel: hmmm
Adam: Do we have to ask people?
Hazel: yes, I mean the, we should have a discussion some point tomorrow before we leave the meeting ***(Sub-state 1.1)***
[Whispering]
Hazel: and see everything to make a concrete plan and decide what is reasonable, and what we want to do in work package 1.
Adam: The number of this input is except one?
Hazel: expect one
Adam: um, the area, you have not show
Hazel: we have nothing to show them, so this time we must, we cannot show them something on the computer, but we must write them a description. But what I did not put on this overhead is that a lot of people has heard about e-learning, but have never tried it. So, they knew what it was or said they knew what it was, but they had never actually taken a course with e-learning.
[Thomas says something, but I did not hear it properly. Hazel replied with yes]
Hazel: yes, no it was not really represented, I was saying this is just the, um, how people summarise the results when we get them
Thomas: uh-huh ***(Sub-state 1.1)***
Hazel: This was just a start
Jack: So what have they done now? They prefer e-learning to

Hazel: no, no, they could not have any idea, because they have no experience ***(Sub-state 2.1)***
Adam: what did they think they were spoke to of web designing? Because I am different
Hazel: yes ***(Sub-state 1.1)***
Adam: [laughs] I could not
Hazel: well, it certainly points to visually impaired people in Britain. I know from not this survey but my other work, that visually impaired people are very interested in entering web design
[Someone tries to speak]
Hazel: and I suppose
[Whispering]
Hazel: well you, um [pause] if you work in a team where you had a sighted person who was taking care
[Whispering – think it is James]
Hazel: of the visual layout on the screen, then you can contribute to the, to the information architecture for example. So, [pause] I am not sure what every person needed
[Uh-huh said by someone] ***(Sub-state 1.1)***
Hazel: but, there is a lot of interest in this one
[Ronnie whispers something]
Hazel: and maybe they do not even realise the problems
[Whispering]
Hazel: that they might have
[Whispering]
Hazel: Ok, the second study we have been undertaking as you know is on evaluation of some current e-learning courses, to see what, how
[Whispering]
Hazel: accessible they are and what problem people have if they try to use them. I will start this and I will hand over to Mary
Mary: ok ***(Sub-state 1.1)***
Hazel: and she will talk about what she has been doing at partner 8. So, [pause] that's just an overview of the presentation, so, like everybody we found it quite difficult to find people to volunteer for this study. Um [pause] I should mention that we are paying our visually impaired participants about 75 or [pause] 80 Euro for doing this study for us, and recompensate for their time.
[Whispering]
Hazel: and so far we have had one blind person and one partially sighted person person
[Whispering]
Hazel: who has come to partner 8, to start his [pause] and we have more coming next week, so, this is getting going
[Whispering]
Hazel: Both, I think all of the people who will do this for us will be people who are quite computer experts and also quite adept at using the web. Obviously, therefore with using different types of Assistive technology, but these people have no experience of e-learning.
[Whispering]
Hazel: so, they are doing [pause] I will leave Mary to describe the courses they are doing, a bit later on
Mary: hmmm uh-huh ***(Sub-state 1.1)***
Hazel: Maybe if Mary talks about partner 8 and Thomas can talk a little bit about what he has been doing in France, because they have also been doing interesting work.
Thomas: I think Adam is going to ***(Sub-state 2.1)***
Hazel: oh ok, fine ***(Sub-state 1.2)***
Thomas: he understands it
Hazel: excellent, excellent. ***(Sub-state 1.1)***
Thomas: He knows the outcomes
Hazel: So, if I move it up to there Mary, and those are your overheads.
[Whispering while Mary gets ready for her presentation]

Overview of the evaluation sessions

Mary: First of all, I would like to give you an overview of how the evaluation sessions were conducted and the different stages we sent through, because the sessions are quite long, our idea was to evaluate an entire e-learning course which can take a few hours to a visually impaired person to go through. What we first did [pause]
Mary: a questionnaire, different questions about their interests in e-learning and the course that they were doing and all sorts of
[Paul says something to Kevin – could not hear what was said]
Mary: After that during the first evaluation session, what we did, very participant started the course that they had chosen, and [pause] we did these sessions at partner 8, because we wanted to collect detailed data and information about how visual impaired people interact with e-learning courses, and the kinds of problems they were experiencing with the course content, or with using Jaws when learning e-learning content. We asked the participants to give us, what we call [pause] think aloud protocol, to just talk us through what they were doing and what they were thinking as well. One of us was present during the sessions, though we were observing what they were doing and making notes, however, we were asking them questions in order to clarify why they were doing what they were doing, and what they were thinking in certain points.
[Whispering]
Mary: And, at the end, we also videotaped these sessions so we also had a recording we can go back to and study in more detail, and [oh], and at the end of the session we asked the participants a number of questions that were in appendix c, of the protocol Hazel distributed. I believe there were quite a few questions about how easy they found easy working with the course with Jaws and
[Whispering –Ronnie]
Mary: and how easy it was for them to navigate within the content, and how enjoyable they found the course as well. After that we asked each participant to continue using the course, in their own time, at home or at work, and where they had to access a computer. There is something on a screen
Hazel: oh that is some strange message ***(Sub-state 1.1)***
Mary: Ok ***(Sub-state 1.1)***
Hazel: my computer likes me to have them
Mary: ok ***(Sub-state 1.1)***
[Laughter]
Hazel: I do not know [in a funny laughy voice]
Mary: Ok. So all the participants at the moment were spending time continuing with the course. We asked them to complete the course, in as many sessions as they felt comfortable. The original session took about 50 minutes, 45- 50 minutes. And at the end, of the session, we asked them to answer the same set of questions, evaluation questions, evaluating the session only they went through. And, at the end we asked them to provide us with their overall [pause] um impressions of the course and give feedback, about the overall course, and how useful they found the course and easy to access. Now I am going to show you, I am going to give you a little bit more detail about the two courses the participants did.
Mary: The first course was about html design. It covered basic principles of web design, html formatting and explaining the tabs and so on
[Paul whispering to Kevin]
Mary: and the formats, which you need to use. What the course contained
[Some individual discussion – Mary waited]
Mary: the course contained mainly textual explanations of the concept
[Someone said uh-huh] ***(Sub-state 1.1)***
Mary: about formatting html. The course also had examples of html code, which explains
[Whispering]
Mary: There were bits of codes which explained, there were also exercises for each

[Whispering]
Mary: unit, so that the students were asked to go and design some basic [pause] webpapges on their own. There were also some miscellaneous questions, at the end, of which unit, which tested how well students have understood what had been covered. Second course, was a little bit more advanced course
[Whispering]
Mary: It was called making web pages interactive, and it basically covered areas of how to code and develop frames
[Ronnie whispering to Lucy]
Mary: for Java pages. It also included textual information and some html codes, which were again explained.
[Whispering – Lucy, Ronnie and Desmond]
Mary: questions at the end of each unit, and you can see at the bottom right corner, one of the questions, which the participants were asked
[Example of not communicating effectively as visually impaired people will not be able to see the screen]
Mary: The pages were quite linear, they were structured in a [pause] linear way, it was sequential, and the participants were able to go through the course in a way that was suggested by the designers. Um, during the observation we noticed
[Whispering – Lucy and Ronnie]
Mary: that the participants had experience quite a few problems accessing the course, although no course was developed to be specifically developed to be answered by screenreading technology
[Whispering – same group as before, but with Morris involved]
Mary: so they were general courses, with accessible versions of the courses, and during some of the problems, were due to [pause] the way that the actual content was coded, and the frames were coded. Some of the problems were due to Jaws as well, so I will be emphasising with those as well. So, maybe the technical partners can think of some points about the plug in
[Whispering]
Mary: and how the plug in can probably improve the problems that were being experienced with Jaws
[Annie nods] ***(Sub-state 1.1)***
Mary: the first problem we found, was that on one of the course, there was a long table of contents, on each page, although the page was quite accessible as it only had text, but it always had this table of contents, which contained the options on every page. SO the person had to read through all the options
[Whispering]
Mary: There were quite a few problems, maybe if I go back to [pause] back to the previous side, and maybe if I can just talk through the problems. [Pause] Yes, if we can concentrate on the second picture on the bottom, at the bottom right. It is an example of a combo box, and what happened is when Jaws reads this page it will read combo box through combo box fault and if there are more
[Whispering]
Mary: they would be confused with which combo box was corresponding to which label, and so Jaws will not read if there is a space or a new line. It will read combo box, text, combo text, answer it, combo box etc. So they were not sure which combo box, had which label. The other problem that they had was selecting the combo box as they had forms, the forms were not designed in an accessible way
[Annie whispers something to Christopher]
Mary: so they could not press space or return, so they had to use the Jaws cursor functionality, which was actually quite tedious for people to use, so that was the second problem which was encountered
[Whispering Annie, Christopher and Fabian]
Mary: and also going back to the original course page was a problem because
[Whispering – Christopher speaking]
Mary: this is a new window
[Michael says something to Lucy]
Mary: and sometimes it was not clear from Jaws if they had opened a new window to the users, and when they tried to click on back
[Whispering]
Mary: to go back to the previous stage, the back button is greyed out and your window, and Jaws does not recognise that. So when you come and go back, it does not really say why. So then the user's had to try different options, so all these problems accessing the course, they, they were overcome at the end, but they delayed [pause] the interaction quite a bit, and frustrated the users as well. They were not happy users for Jaw's cursor. What other problems we found were about
[Whispering]
Mary: had memory issues
[Fabian whispers something to Annie]
Mary: We found that
Mary: we found that, um the courses that were being evaluated, could be a burden on the memory of the students
[Whispering – can hear Annie speaking]
Mary: what people experienced were difficulties remembering what items
[Whispering – can hear Desmond speaking]
Mary: were read previously, especially forms when there were five or six answers
[Whispering]
Mary: and people very often could not remember all the answers or all the items.
[Whispering]
Mary: so, they really had to read the page over and over again. So, again the way that Jaws was
[Hazel whispers something to Kenneth]
Mary: doing something that it has started reading the page, from the beginning over and over again
[Can still hear Hazel whispering to Kenneth]
Mary: it delayed the process, and that was not very pleasant as well
[Whispering – Ronnie and others]
Mary: And now the problem was focus when switching between the different windows, when students went back to the course from doing the self assessment questions, they could not remember at what point they had left the course, and a visual person can see very well, oh what had come before, but [pause] a visually impaired or a blind person could not do that, and Jaw's starts reading the page from where its selected onwards. So, it, they could not easily go back to the page they have, they just can scan through the things that they will have read.
Mary: The participants also encountered problems with
[Annie and Christopher whisper something between each other]
Mary: with the learning problems, they were actually due to the problems with the [pause] with accessing the page
[Whispering]
Mary: yes
Thomas: can you go back
Mary: yes ***(Sub-state 1.1)***
[Pause]
[Some own discussions taking place]
Mary: Let's continue with the problems,
[Paul still whispering to Kevin]
Mary: None of the courses had an overview of the units which were included in the course, again, again a visual person would go through the page scanning all the units, without looking at the content of the page, where is the visually impaired, because they could not because they had to start reading sequentially the page. So very often they did not have an idea of how much content was there in the course, also how many exercises they needed to go through, how many questions were there [pause] so there were a little bit, it confused them a little bit. The question wording, the self assessment wording was sometimes confusing, so
[Whispering]
Mary: this is a problem, every student can encounter, it is not applicable to visually impaired students. The answers, the [pause] the feedback given to

the students after answering the questions was very often ambiguous, because they [pause] the feedback was given in a graphical and [pause] a textual [pause] let me see if I can go through this here and show you
[Mary starts pointing to the screen]
Mary: So when you click on the submit bit, the button, if the answer was true here there would be a click here and a cross here, and here would be a box explaining what the answer was. But there was a textual or audio output for whether it was correctly answered or not
[Annie and Christopher whisper]
Mary: So, what also the students wanted to know what was in the box
[Paul and Kevin whisper]
Mary: can read the tab, and it did not answer whether the question was answered right or wrongly. So, sometimes they have answered the questions wrongly, but they did not actually understand that from the textual description.
[Whispering]
Mary: So they were left with the misconception, and the misconception was not [pause] clearly corrected, during, or as a result of going through that kind of [pause] interaction.
[Whispering]
Mary: Sometimes, the instructions were misguiding, because one of the participants made a very small
Error
[Someone said uh-huh] ***(Sub-state 1.1)***
Mary: while typing in
[Someone's mobile phone goes off]
Mary: One of their answers, then the instructions
[Mobile phone goes off again]
Mary: we will wait
[Sorry was said by the phone owner. Mary laughs and says it was ok]
Mary: and the instructions which were given to them were very general. [Pause] They had difficulties finding out what was the problem, and again a visual person would be able to scan their answer and probably find out what the system is saying. But um [pause] for visually impaired students, again, they had to really read it all the page, really read their answer and try to memorise what was the question and find out what was their mistake.
[Whispering]
Mary: and it took them quite a few attempts in order to correct one very small mistake, so that again, was slowing down the process of learning and also adding to the frustration, because the student know they got something very wrong, when they just type up an extra bracket or tab or something like this
[Whispering]
Mary: So that was not something very encouraging for a novice learner, to encounter something like this. Again, I have covered the learning perspective
[Christopher nods his head] ***(Sub-state 1.1)***
Mary: and also another thing which came up, which is general for all types of students using e-learning application, is the lack of immediate face-to-face interaction with the tutor can
[Whispering]
Mary: mean that some of the questions that they had cannot be answered too immediately, but that is a general question. Again, they are in control of how fast they go through the course
[Whispering]
Mary: and um [pause] they found the task and the material reasonably interesting and enjoyable.
[Whispering]
Mary: Again I mentioned frustration which comes with all the access problems of filling in forms.
[Whispering – Paul and Kevin]
Mary: And again, the access problems, sometimes meant that from a learning perspective, meant that the users were making learning mistakes.
[Christopher nods his head] ***(Sub-state 1.1)***
Mary: as well, which added to their frustration as well. So, I think emotional aspects to visually impaired people were working with [pause] working with this of application is important as you can see.
Hazel: ok ***(Sub-state 1.1)***
Mary: Shall we go through that?
Hazel: No, no, you go onto your conclusion slide. ***(Sub-state 2.1)***
Mary: well, I just want to say some words at the end
[Whispering]
Mary: we are continuing with the evaluations, we are doing two more
[Whispering]
Mary: We are starting two more applications, and also the overall feedback of the two participants. So the results are all preliminary
[Whispering]
Mary: they are only preliminary at this stage.
[Whispering]
Mary: But the issue we are interested is about how visually impaired people interact with e-learning content
[Whispering]
Mary: and also the kinds of problems they experience, which I think [pause] the next stage will be to find out, um some solutions for the critics that visually impaired students encounter when learning with online courses
[Whispering]
Mary: So I, I think, this results from this evaluation can feed into um, the development of the portal, um the e-learning portal, and also can provide maybe technical partners, as to what the plug in can provide
[Paul whispering to Kevin]
[Christopher nods his head] ***(Sub-state 1.1)***
Mary: and with Jaws in order to improve the, the interaction
Hazel: Excellent. It seems to me, listening and hearing about this, it might be very useful ***(Sub-state 1.1)***
Annie: to have this presentation
Hazel: No, no, no, more than that, to have the e-learning courses ***(Sub-state 2.1)***
Annie: yes ***(Sub-state 1.2)***
Hazel: they, that you, um these are important, these are not just websites, these are important e-learning courses you have to pay for
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: they are not very expensive
Mary: yeah ***(Sub-state 1.1)***
Hazel: What did they cost us?
Mary: $110
Hazel: $110 America
Mary: for each course
Hazel: yes ***(Sub-state 1.1)***
[Discussion – can hear asking about course]
Hazel: So, you can really get to the e-learning u functionality
Annie: yes ***(Sub-state 1.1)***
[Others say yes and uh-huh in the background] ***(Sub-state 1.1 x 2 spoken evidences)***
Hazel: and you can go through, looking, immediately, send you more details
[Whispering]
Hazel: about this, but looking at the problems and thinking what about

[Whispering]
Hazel: how can voice do this better?
Annie: it would be very useful ***(Sub-state 1.1)***
Hazel: I think this might be the real solution
Annie: yes ***(Sub-state 1.1)***
Hazel: real solution
Annie: Actually I have, have some solutions to the problems
[Whispering]
Hazel: right ***(Sub-state 1.1)***
[mhmm said in the background] ***(Sub-state 1.1)***
Annie: I ask you for this presentation
Hazel: absolutely ***(Sub-state 1.1)***
Mary: hmmm ***(Sub-state 1.1)***
Annie: for tomorrow to prepare for the presentation
Mary: hmmm ***(Sub-state 1.1)***
Hazel: yes. We transfer it ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: from mine to yours. ***(Sub-state 1.1)***
Thomas: It is for one year? You pay the 100 dollars?
Mary: yes, it is for 12 months, 12 months yes ***(Sub-state 1.1)***
Lucy: for how many courses?
Mary: For 80 courses.
Hazel: there is 80 courses all about [pause] what ***(Sub-state 1.1)***
Mary: developing
[Hazel laughs]
Mary: yes
Hazel: Yes, there is 80 ***(Sub-state 1.1)***
Annie: 80 ***(Sub-state 1.1)***
Hazel: you can pick, you can become a real web developer as well.
[Laughter – Mary, Hazel and others]
[Lucy is speaking]
Mary: 80 units is about 4 or 5 hours, each course, so the courses were not that long. They provide for abut four or five hours teaching time.
Lucy: we have no money, partners 5 or 7
[Whispering]
James: Can you repeat the question please
Lucy: [Speaks louder this time]. I said when partners 5 or 7, we have to do the same work? To put in some people on an e-learning site, how shall we be able to pay such a fee, because we do not have a allowance in our budget, some money for that.
James: Ok ***(Sub-state 1.1)***
Lucy: Shall we write to you, and you shall send us money?
[Laughter: Paul laughs, Mary laughs and others join in]
Lucy: it seems a way
Paul: yes, no, no ***(Sub-states 1.1 and 2.1)***
Mary: there are some free courses out there
[Whispering – individual chatter to do with the courses]
Jack: Now as there is no budget
[Whispering]
Jack: Now, we have the budget for all the work, but I think we can provide it
[Whispering]
James: Regarding when I have listening to the presentation of partner 8,
[Paul clicks his fingers]
Paul: Can I just say something?
[Lucy indicates she wants to speak]
Paul: no, you go ahead. ***(Sub-state 2.1)***
James: Ok, when I have listening to the presentation of partner 8 I have observed that
[Whispering between some of the partners]
James: that some of the training, the e-learning courses that you have the contact is Mindleaders
Mary: yeah ***(Sub-state 1.1)***
James: and in this moment you have
[Still some whispering in the background between some of the partners]
James: [pause] to put on the table that it is not necessary to buy some of the courses
Mary: No, no it is not ***(Sub-state 1.1)***
James: [pause] And I know that all companies in the partners 1 and 2[pause] sign a collaboration agreement sometime ago, exactly [pause] 12 or 15 months ago, in order to commercialise the contents, the e-learning contents together.
Mary: uh-huh ***(Sub-state 1.1)***
James: So, I have to view the current situation of this on the collaboration agreement with my leader of partner 1
[Paul whispers something to Kevin]
Mary: oh right ***(Sub-state 1.1)***
Hazel: oh right, ok ***(Sub-state 1.1)***
James: This, this [pause]
[Some whispering between Paul and Kevin again]
James: This contract was signed directly by me, myself when I had other responsibilities I have to review the
[Whispering in the background by some of the partners]
James: the current situation, and investigate this contract is ready like
[Can hear Hazel whispering]
James: This is like so, at this point we have to review in that way
Mary: huh ***(Sub-state 1.1)***
James: This case, it could eliminate the difficulty of payment for this course
[Some whispering between partners again]
Mary: Can I just add two points to that.
[Some whispering again]
Mary: First of all there are some courses online that are free, so maybe if you can find free courses that would be, that can solve the problem as well.
[Can hear Ronnie whispering in the background]
Mary: and the second point is that using only Mind leader's courses is that it can be a problem, because they are structured in the same way, or in a very similar way in at least from what we saw. So we are looking at varying the courses to gather experience on different types of courses, and different [pause] interactions, [pause] interactivities and models that are built into different courses as well.
Hazel: uh-huh ***(Sub-state 1.1)***
Mary: In order to gets a broader view

Annie: ahhh ***(Sub-state 1.1)***
Mary: of the problems
Hazel: yes ***(Sub-state 1.1)***
Mary: Because if we are going to evaluate Mind Leaders course's we will come up with the same problems
Hazel: uh-huh ***(Sub-state 1.1)***
[Fabian whispers something to Annie]
Mary: And we do not want that. We want a variety of problems
[Elsie nods her head] ***(Sub-state 1.1)***
Mary: problems, [pause] in order to come up with some solutions, yeah, so that is one point to bear in mind, yes.
James: Ok, so we are going to review the current situation ***(Sub-state 1.1)***
Mary: uh-huh, that will be very useful ***(Sub-state 1.1)***
[Hazel nods her head] ***(Sub-state 1.1)***
James: and in case, with the philosophy that this morning, everyone agreed the table regarding the critical period of three months, in front of us, we should have some preliminary version of this work package, perhaps it is not necessary that it covers
[Mary nods her head and says uh-huh] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
James: all the tables indicated
Hazel: yes ***(Sub-state 1.1)***
Mary: uh-huh ***(Sub-state 1.1)***
James: in the contract. So, we have to handle the aspects
Mary: uh-huh ***(Sub-state 1.1)***
[Ronnie is whispering to someone]
James: next month, and also to plan by the schedule way for the following months
Mary: uh-huh ***(Sub-state 1.1)***
[Pause]
James: ok. Yes

E-learning portal

Paul: It strikes me, more and more that what we really need in order to achieve some broad based results
[Annie whispering]
Paul: and to get some work done, that we actually need an e-learning portal in this project, that we can use, and in order to have the same sort of basis [pause] for all of the person's
[Mary whispering]
Paul: [pause] that tries out
[Mary whispering again]
Paul: e-learning activities that we should only try and [pause], um in the very near future to try and have our own e-learning portal that we can make use of, in order so we can get some
[Mary whispering again]
Paul: so that we can get some more generalised results
[Others whispering as well]
James: Yes, but the ***(Sub-state 1.1)***
[Other's whispering as well]
James: I am not sure if I understand exactly what you mean. My proposal is to be [pausing] sure. I do not know if it would be possible to have a complete e-learning portal available for the tool for the next month. ***(Sub-state 3.1)***
[Other's whispering]
James: So we have to make some complimentary activities, covering whole work package, in order to show the commission that the work is done according to the scheduled plan.
[Can hear some whispering]
James: For this reason, for example,
[Some more whispering again]
James: the webpage this morning that it has been agreed, has to be accessible, only by the partner 7 page
[Elsie nodding her head] ***(Sub-state 1.1)***
James: only in English and some more capabilities for e-learning
[Own discussions taking place]
James: So, we are able to cover all aspects indicated in the contract. We must do focus in the point
[Hazel whispering to Mary]
James: that we know positive that the commission is going to analyse. So, we are not, it is impossible to cover all
[Whispering]
James: aspects indicated in the contract in the next two months.
[Whispering]
James: So, this is my proposal. I do not know if there is any other possibility or alternative ***(Sub-state 3.1)***
[Own discussions taking place]
James: I am willing to [pause] to, from a holistic point of view to [pause] to, I would like to see any, any, any other way, I do not know if it is even
Lucy: was it not partners 1 and 2 who was supposed to
James: sorry
[Someone said portal in the background and others repeat it as well]
Lucy: yes portal, at what month? ***(Sub-state 1.1)***
James: yes of course. Ok, according to the contract, everyone knows and has in front, the portal, the activity of the portal is going to start in month 12 ***(Sub-state 1.1)***
Mary: oh yeah ***(Sub-state 1.1)***
James: So, this is going to be impossible for that reason, we are going to propose to the commission we conduct the work before, after that if you want we can see a very brief presentation of this work package, so [pause] the portal is start, the portal activity is start in 12th month, but we are going to study before, in order to have
[Can hear whispering [
James: to have some prototype, some preliminary portal to hve
[Can still hear some whispering]
James: To show the commission, in July.
[Someone says uh-huh] ***(Sub-state 1.1)***
James: So, this is the way, the only way that we observe in the moment that we can in order to solve the situation
[Paul is clicking his fingers]
James: and any additional alternatives, we are willing to listen.
Thomas: What about the content?
James? The content? Ok, regarding the content ***(Sub-state 1.1)***
[Someone knocks on the table to draw attention]
[Whispering between some of the partners again – mainly Annie and Christopher]
James: Regarding the content, the first step is to start with some work from user
[Can hear whispering amongst some of the partners]

James: available by voice, so in this sense, like we said in the morning we are going to collaborate with partner 7
[someone says yeah] ***(Sub-state 1.1)***
James: and after that if it is possible to add any additional features for e-learning capabilities we are going to do
Mary: uh-huh ***(Sub-state 1.1)***
James: If it is possible in this short time we have in front of us
[Can hear whispering]
James: So, what is clear is that the first step is to have partner 7 webpage, accessible by voice
Thomas: by voice?
James: yes, yes of course. So, the first step is to have this webpage available ***(Sub-state 1.1)***
[Paul has a smile on his face]
[Can hear whispering]
James: If we have time we are going to provide some
[Mary whispers something]
James: calls, calls coming from my leader, another provider
[Can hear whispering]
James: and we are going to include in this trial web page of the partner 7, some content which was considered for the [pause] for the user. So, the first step is to have
[Elsie sitting with her arms crossed]
Paul: which is even preferable since, we have to create an e-learning portal, within the framework of this project anyway, that we find some sort of content that is suitable and to make our own sort of e-learning portal, which we have to do anyway.
[Someone says uh-huh in the background] ***(Sub-state 1.1)***
Paul: we have to do it anyway. Partner 1 will have to create, if I understand the contract correctly, that they have to, they will have to create an e-learning portal anyway.
James: Yes, but for the seven, for the twenty seventh month what we are casting, in this table, is the weeks, [pause] at this moment, following the commission to close the project. ***(Sub-state 1.1)***
[Can hear some whispering]
James: So, if we are able to pass the evaluation process in July,
[Can hear whispering]
James: we are going to remain of course, all compromise, as was indicated in the contract
[Can hear whispering]
James: But there are some issues, which are not possible to cover
[Can hear someone whispering in the background]
James: in the next two months.
[Can still hear some whispering]
James: So it is a matter of selection
[Can still hear whispering]
James: a selection of priorities, [pause] all partners decide is it better to try and cover all items, we are going to try, I do not know if it is the better option. [Pause] it is a 27 project, and we have to cover some functionality's in early demo, in 10 months
[Someone says uh-huh] ***(Sub-state 1.1)***
Lucy: Excuse me, did you say, I did not understand well, I did not catch it well.
James: Yep ***(Sub-state 1.1)***
Lucy: Did you say some minutes ago, you will ask the commission to be able to begin two or three months before
James: yeah ***(Sub-state 1.1)***
Lucy: the preparation of the portal?
James: yeah ***(Sub-state 1.1)***
Lucy: Should you write an official letter? [Pause] with agreement of all the partners?
[Pause]
James: Ok, yes this is a process that when we sent a letter or some official communication to the Commission, we must have to have the confirmation of all the partners. [Pause] ***(Sub-state 1.1)***
[Jack whispers something to Fabian]
James: and if anyone doesn't want to before
[Elsie says something to Michael]
Hazel: Do we actually need the commission [pauses] the permission from the commission to start the workpackage.
James: What is clear is that in this project, that partner 1 is leading the project, because we feel it is important to provide these new technologies to the user
[Can hear whispering]
James: and we have our own responsibility that we are going to do [pause] all that is necessary to get success of the project. We are in close contract with the project officer.
[Can hear whispering]
James: and we are doing our best to comply with the commission
Jack: I was trying to [pause] to look up for the quarterly report
[Whispering in the background]
Jack: and there is a chapter that says, if you remember with the quarterly report, change in the [pause]
[Silence]
Jack: and I do not remember if, in the last quarterly report we already said tell the commission about this change ***(Sub-state 3.1)***
[Lucy nods her head ands says uh-huh] ***(Sub-state 1.3 x 2 –spoken and non verbal evidence)***
Jack: I remember we told them about the other work package 3, and maybe now for the next quarterly report, next January till March, we will say that, we are changing that
Kenneth: its, its
Jack: maybe that's enough
Kenneth: It's not a formal change to the contract ***(Sub-state 2.1)***
Jack: yeah ***(Sub-state 1.2)***
Kenneth: to simply, we have started some work earlier and that is not a problem.
[Lucy nods her head] ***(Sub-state 1.1)***
Jack: Yeah, we tell them in the quarterly report that
Kenneth: uh-huh ***(Sub-state 1.1)***
Jack: that some work started early, before
Kenneth: yeah ***(Sub-state 1.1)***
Jack: yes, started before
Kenneth: uh-huh ***(Sub-state 1.1)***
Lucy: I think
James: ok. What is clear is that it has been necessary to do some modifications regarding the initial plan ***(Sub-state 1.1)***
[Annie and Christopher are whispering]
James: and this was done in order to ensure the success of the project, and we are going to follow these kinds of initiatives, continued with your support. Or in the case that we are going to communicate with the commission. But in any case, I think we are going to [pause] review the modifications, up till know we have been say using [pause] common sense and imagination, and it is the case that every partner has been agreed.
[Pause]

James: Ok, so any additional questions?
Thomas: Yes, I just want to ask a practical question ***(Sub-state 1.1)***
James: yes ***(Sub-state 1.1)***
Thomas: about the portal
James: yes ***(Sub-state 1.1)***
Thomas: From the point of view, does the portal need to point out to other websites or we have to find
[Pause]
James: Um, we have to [pause]. This has to be agreed by in principle, in my point of view it is
[Whispering in the background]
James: we must produce
[Mary is whispering]
James: we must produce in the next say 15 days to translate the current content of the webpage
[Lucy is sitting with her elbows resting on the table]
[Mary and Kenneth whispering]
James: web page, in order to make accessible by voice
[Mary and Kenneth whispering]
James: So, these are work together partner 7 and partners 1 and 2. That [pause] we get an accessible web page in a short time.
[Can hear Mary whispering]
James: In that short time, when we must decide if we are on time to provide some e-learning capability. But this is from the point of view, the second stage, so my proposal is to ensure that the first step is to have the web page accessible by voice, and after that, it is a matter, that we have started the meeting this morning, telling that we are in front of three months, more critical of the project, and it is necessary to increase the communication between the partners and to identify some contact point, such as we have to made this morning. For example, for one part of the deliverable 3.4 Elsie has been identified as for the contact person for the webpage
[Morris whispers something to Ronnie]
James: Your comments have been
[Paul whispers something to Kevin]
James: identified and the contact person, will facilitate a lot of
[Can hear whispering]
James: a lot of communication, it is a matter of [pause] to use
[Can hear whispering]
James: the contact points. I do not know if I am answering your question or, yes ***(Sub-state 3.1)***
[Can still hear some whispering]
Lucy: Let us say that after two weeks, you have solved the problem of translating the webpage, the partner 7 webvoice into voice
[Can hear Ronnie whispering]
James: yep ***(Sub-state 1.1)***
Lucy: and then you are able to work, to work out, an e-learning part of the site
[Can hear whispering]
Lucy: Is it not necessary, or is it not possible to have a decision now?
[Hazel laughs]
[Hazel looks at Kenneth]
Lucy: Because how can you take the decision, without your partners? You need the decision of the partners
[Can hear some whispering]
James: but regarding,
Lucy: but regarding the fact we will put an e-learning exercise on our [pause] on our presentation
James: Yes ***(Sub-state 1.1)***
Lucy: and
Hazel: I am sorry, but I do not think that addresses the problem ***(Sub-state 2.1)***
Lucy: no ***(Sub-state 1.2)***
Hazel: that we are facing at the moment. What we need is a lot of examples of the kinds ewe discussed on current e-learning practice.
[Elsie is whispering to Michael
Hazel: so that partner 2 can look at what the problems are and to propose a solution to them. I think having one exercise on the [pause] on the partner 7 website
Lucy: yes ***(Sub-state 1.1)***
Hazel: is not, it is not going to do that at all. It is not going to solve this problem. What you are proposing is a fine thing to do for the project
[Elsie is again whispering to Michael]
Hazel: But I think we need to, um, [pause] the only quick way, to come up with some solutions is to look at a range of current e-learning courses and to see what problems do they have
[Can hear whispering]
Hazel: and what problems you can suggest.
[Someone says yes] ***(Sub-state 1.1)***
Hazel: yes ***(Sub-state 1.1)***
Lucy: and yes that comes back to our question: how shall we pay for the e-learning courses. How do we have to pay for it?
[Own discussions taking place]
Hazel: But, but, did you not put some money aside for consumables? We just took money out of our consumables.
Lucy: how?
[Morris puts his hand up]
James: Yes, yes ***(Sub-state 1.1)***
Morris: Yes, please. Um, [pause] I think Hazel is right, and I would like to raise the point further, because, the idea we had this morning, to have a system tried on [pause] the partner 7 website. With this idea we will face the same concerns as this morning, we will not reduce it [pause]. [Pause] But what would be an advantage is to try Compolabras, or a site, which is reasonably accessible to all sites, designed by blind organisations, because the level of awareness makes it that ***(Sub-state 1.1)***
[Whispering between Annie and Christopher]
Morris: with our websites, is that they are way conformant, and one way forward with this would be maybe to work on a site
[Hazel whispers something to Mary]
Morris: um, a mainstream sites, um like this, which is not particularly accessible, and I thought this was the original idea. To see what [pause]
Lucy: voice xml
Morris: voice xml and compalabras can do solve certain problems of accessibility, which [pause]
[Whispering in the background]
Morris: without going out of our way. So, I would suggest that we look for another [pause] type of text website
Hazel: and it is not just the website, it is an e-learning site.
[Annie nods her head and says uh-huh] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
[Whispering]
Paul: ok, yeah ***(Sub-state 1.1)***
Hazel: I say that not only because that is the core of the project
[Whispering in the background]
Hazel: but actually, because I think that would be the quickest way to show the added value. I think that is the interactivity
[Whispering]

Annie: and the users are going to [pause] to use the e-learning courses?
Hazel: yes, yes ***(Sub-state 1.1)***
Morris: E-learning is, um [pause] I am just a bit concerned that this morning we said we would not have the time in the three months to come,
[Whispering]
Morris: so that would be a good compromise.
Hazel: No, that is why, I am saying we use already existing ***(Sub-state 2.1)***
Lucy: existing
Morris: yes, ok ***(Sub-state 1.2)***
Lucy: uh-huh ***(Sub-state 1.2)***
Hazel: e-learning
Morris: e-learning sites
Hazel: e-learning sites. And later in the project we develop our own. We start ***(Sub-state 1.1)***
[Whispering by Desmond]
Elsie: Just a small question
James: yes ***(Sub-state 1.1)***
Elsie: um e-learning websites you studied on, were already accessible?
Mary: yes ***(Sub-state 1.1)***
Hazel: they were meant to be yes. ***(Sub-state 1.1)***
Mary: yes, yes ***(Sub-state 1.1)***
Kenneth: I think that is
Elsie: yes, ok
Kenneth: that is a very important point, and some of the issues, which Mary has raised in her presentation, are actually ones, which relate too a poor use of html
Mary: uh-huh [Mary nods her head at the same time as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: not necessarily um, an issue about the voice xml can particularly help with
[Hazel and Elsie nod their heads and say yes as well] ***(Sub-state 1.1 x 4 –spoken and non verbal evidences from 2 people)***
Kenneth: If we actually had to re-design some of the html
[Mary nods and says uh-huh] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: it could be significantly better
Mary: uh-huh ***(Sub-state 1.1)***
Kenneth: So, we do need be careful to actually identify a real problem
Hazel: problems
Mary: uh-huh ***(Sub-state 1.1)***
Kenneth: Not problems simply because of the e-learning material we have got at the moment
[Hazel, Mary and Elsie nod their head and say yes] ***(Sub-state 1.1 x 6 from 3 people, both verbal and non-verbal evidences)***
Kenneth: and put together.
Hazel: Ok, right, and I think the solution, I think the way forward to that is to, that's why I think it would be good if everyone in the project had access to these e-learning. Then people can see it and to take the WAI guidelines
[Mary and Kenneth say uh-huh and nod their heads] ***(Sub-state 1.1 x 4 from 2 people, both verbal and non-verbal evidences)***
Hazel: and to say well although this was meant to be WAI conformant
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: did they actually not make this particular bit WAI conformant? Was that the problem?
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: Or even if it was conformant, was that not enough of a solution to the problem. So, I think that can be a [pause]. E-learning as you see
[Kevin whispers something to Paul]
Hazel: I think the commission would find that very interesting, if we reported on that in the review, that we took
[Some own whispering taking place]
Hazel: um, a set of allegedly e-learning accessible materials,
[Elsie nods her head] ***(Sub-state 1.1)***
Hazel: and we found that they had not [pause] had applied the WAI guidelines, it still did not work very well, and why was that. I do not think we have to offer a voice solution to every problem we find
[Annie and Elsie say uh-huh] ***(Sub-state 1.1 x 2 from 2 people)***
Kenneth: but that goes back to the question which Mary was creeping up in path, is what is the useful tool for learning
[Some own discussions taking place]
Kenneth: and that is the task that we are talking about
Hazel: yes ***(Sub-state 1.1)***
Kenneth: whereas WAI is saying is this accessible
Hazel: uh-huh ***(Sub-state 1.1)***
Kenneth: what we are saying is it, is it actually suitable for the task? Because it is accessible does not mean it is suitable
Mary: yes ***(Sub-state 1.1)***
Kenneth: for learning
Annie: yes ***(Sub-state 1.1)***
Hazel: yes, but I think that is a really good point, it might have been accessible, but did it support user in learning ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: and could voice support or help the user better?
[Some whispering taking place]
James: Ok, ***(Sub-state 1.1)***
Adam: ok, on the webpage we have to ***(Sub-state 1.1)***
[Hazel laughs]
Adam: Don't you prefer it that we have to [pase] make a webpage with all the problems
[Hazel laughs]
Adam: we have just
Hazel: no say it
Adam: I can speak it in French properly
[Laughter again]
Thomas: partner 7 is
Adam: That would be quicker for us to work on webpages, with total [pause] and all these things, which was problems for visually impaired
Hazel: I think that is a very, that is a good way [pause] because we wanted visually impaired people to have a learning experience, we tried to, I said to Mary do not let them do an e-learning course which is completely inaccessible. ***(Sub-state 1.1)***
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: but another possibility would be for people in the project to expert web blind users to go though these courses, and other courses and say this does not, this is a pop up menu this does not work
Mary: uh-huh ***(Sub-state 1.1)***
[Annie nods her head] ***(Sub-state 1.1)***
Hazel: So this is a complimentary activity
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: that is seems to me

[Some whispering]
Adam: how can we, [long pause, how can you, [long pause] I do not know how to it works. Is it a possibility to [long pause], things like [pause] with [pause]
James: So the technical work of the deliverable, will be done by partners 1 and 2
[Jack looks at Christopher and Annie]
Annie: yes ***(Sub-state 1.1)***
James: and the contribution expected for partner 7, is original content and confirmation, what have been finally produced is according with [pause] with what was expected. So, just to provide content and conform using this new pedagogy, to provide this research and partner 7 can say if it ok, or necessary to modify something's.
[Own discussions taking place inaudible]
[Laughter]
[Morris puts hand up]
Morris: Excuse me
James: yes ***(Sub-state 1.1)***
Morris: If I understood correctly, this morning we were discussing the possibility for
[Some own chatter taking place- cannot hear what is being said]
Morris: for the first term to have an implementation system on the partner 7 page. We are changing our minds, it is is a good thing. But, now we have to make sure that we all agree on what website we want work to be tested
Hazel: yes ***(Sub-state 1.1)***
Morris: there is I think [pause] an agreement across the board that this website should be an e-learning website. How to, [pause] how to identify it?
Hazel I have a question to you, do you think the findings from your short survey can be transferred across different countries? ***(Sub-state 1.1)***
[Whispering between Thomas, Jack and James]
Hazel: yes, yes ***(Sub-state 1.1)***
Morris: In terms of, in terms of the kinds of websites blind people are interested in
[Some whispering can be heard]
Hazel: the kinds of blind people your organisations have, has contacts with is um [pause] yes, yes, is the short answer. [Pause] IT does not cover all the interest, but I think we will find people with those interests in all countries.
[Some own discussions taking place]
Morris: So, do we need, do we need, are we going to go to the website, is the partner 7 website going to be based on the findings of your short survey? I mean either an IT or languages
[Some own discussions taking place]
Hazel: I am a bit concerned, [pause] about the website which will be tested, [pause] what, we are not just talking about testing one website, we want people to test a number of courses
[Fabian nods his head] ***(Sub-state 1.1)***
[Some own discussions taking place]
Hazel: So, I think we have two issues, maybe I am wrong, but let me try this out with you. I think there are two things here, there is going to be an e-learning portal.
[Charles, Fabian, Annie, Christopher and Lucy nod their heads] ***(Sub-state 1.1 x 5 evidences from 5 people)***
Hazel: an e-leaning portal
Morris: uh-huh ***(Sub-state 1.1)***
Hazel: Can we discuss what we mean by a portal? To me a portal
[Can hear some own discussions taking place]
Hazel: is a gateway to lots of other courses
[Own conversations taking place – can hear James]
Hazel: So, I am talking about the courses you find by going through the project [pause]
[Someone says portal]
Hazel: um, gateway. Let's not call it a portal [laughs]. So, it's not, so obviously the project portal will be accessible, but what we are trying to find out are the problems that people are having, that we can develop solutions to. And, they do not have to be on websites that we develop, although [pause] later on in the project obviously we want to develop some e-learning material which shows the real best practise and the potential. But, I do not see a problem with using other people's e-learning materials at the moment. ***(Sub-state 2.1)***
Desmond: uh-huh ***(Sub-state 1.1)***
Hazel: and frankly I do not think there is any other way of doing the work we need to do in the time that we have.
Morris: yep, ok. Which means that we do not have, [pause] what I had in mind was the demonstration website [pause] which is supposed to be produced for all people ***(Sub-state 1.1)***
[Can hear whispering]
Morris: which is not supposed to provide content. That is my concern.
Hazel: is that
Morris: I want to know what we are expected to do
Hazel: is that, um, is that demonstration e-learning [hesitantly says uh, uh]
Ronnie: No ***(Sub-state 2.1)***
Hazel: Is that, [pause] do we have to present that at the first review? I thought that was later
Morris: that is an issue we need to discuss
[Some own discussions taking place]
James: ok, [pause] perhaps we have to agree what it is going to be the first real case we are going to show to the commission
Hazel: yes ***(Sub-state 1.1)***
James: This morning, I proposed a webpage of partner 7, that is the page of their organisation, this is from there discussing if it could be interesting to present some preliminary e-learning portal [pause] and I would like to be able to present
[Can hear whispering where people are having their own discussions]
James: the first version of the portal, but I do not know if we are going to make it in time
[Own discussions taking place]
Morris: So, what do you suggest then?
James: My suggestion remains the same this morning, that I am going to have a view to create a real case, a webpage accessible for [pause] for people using voice technology
Lucy: uh-huh ***(Sub-state 1.1)***
James: and indicating one of the following points will be according to the contract to create an e-learning portal, [pause] an e-learning portal.
[Ronnie tried to say something]
James: Ok Paul
Paul: Judging from what we have been talking about now, I get the impression that we [pause] want to look at different e-learning sites and different e-learning activities to begin with. So, if we want to do that, come up with our own e-learning portal later then I really think what we should do, the first thing is to try and
[Can hear someone whispering]
Paul: to try and make an existing portal, as we agreed this morning
[Can still hear some whispering]
Paul: accessible though voice xml. So, that is where I think we should [pause] stick to what we decided this morning, and then decide on some timeframe, as part of the partner 7 development, of the e-learning portal, after that. We should also maybe, to have some sort of something to show to the commission that if we ever come so far
[Can hear whispering]

Paul: to do something, probably with the partner 7 website, because it would be something which would be beneficial to, to a number of people, and it would not just be one national user organisation. So, I think we should, yes, I would agree that we should stick to this morning's decision.
James: ok ***(Sub-state 1.1)***
Hazel: could there be
Paul: For the firststage
Hazel: Could there be an extra page put on the partner 7 website for the project that is, that shows [pause] the beginnings of what an e-learning portal would look like.
Paul: yeah ***(Sub-state 1.1)***
Hazel: which has links for example, particularly if you have [pause] if you can make an arrangement with Mindleaders, that it could be a portal to the Mind Leaders material.
Paul: Yes that would be a good idea. ***(Sub-state 1.1)***
[Annie says yeah and nods her head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Hazel: yes ***(Sub-state 1.1)***
Jack: But you see Mind leaders, as they are, not changing anything
Hazel: no, Mindleaders as they are. ***(Sub-state 1.1)***
James: ok, and just an application of the kind of work ***(Sub-state 1.1)***
[Hazel laughs]
James: the kind of work which has to be developed, in the second year of the project
Hazel: yes ***(Sub-state 1.1)***
James: So an accessible webpage
[Some own discussions taking place]
James: is going to take you [pause] Internet, e-learning courses, and this is the way we are going to work in the second year.
Hazel: because even though we had problems with Mindleaders, people could use them
Mary: Definitely ***(Sub-state 1.1)***
Hazel: whereas some web e-learning sites, visually impaired people cannot use at all
Mary: yes ***(Sub-state 1.1)***
Hazel: So it is not like we should, we should [pause] be positive, particularly if you have a relation [laughs] relationship with Mindleaders.
Mary: yes ***(Sub-state 1.1)***
James: We had a relationship
Hazel: right ***(Sub-state 1.1)***
[Some own discussions taking place between Kevin and Paul]
James: We lined up this, but I [pause]
Lucy: Shall we continue to look at e-learning and take time to see if it is interesting for blind people or not?
James: yes ***(Sub-state 1.1)***
[Fabian and Jack nod their heads] ***(Sub-state 1.1 x 2 from 2 people)***
Ronnie: that would be useful. ***(Sub-state 1.1)***
[some own discussions taking place, Christopher and Annie, Hazel and Mary]
Lucy: So, can we summarise what we shall do?
[Some laughter]
Hazel: Can I just get my pad of paper, want to know what I am committing myself to [laughter]
[Others join in with the laughter – Paul, Mary and others can be heard]
[Some own discussions taking place]
James: Right, we are trying to make a summary
[Some whispering still taking place]
James: The decision of tomorrow morning regarding to make a webpage accessible of the partner 7,
Ronnie: this morning ***(Sub-state 2.1)***
James: yes, this morning ***(Sub-state 1.2)***
[Some people laugh]
James: sorry, [pause] um, remains valid and finally [pause] it is interesting to consider the possibility indicated by Hazel, in order to show one additional [pause] page which can be considered to take for the future e-learning capabilities of the e-learning portal we are going to develop.
Hazel: uh-huh ***(Sub-state 1.1)***
James: and to indicate to the commission that we are trying to follow up
[Some whispering]
James: and regarding, [pause] the collaborative questions [pause] this morning has been reached. Adam is going to be the interface, with technical companies, partners 1, 2 and 9. In order to provide content we are going to transform in the new technology, we are going to alter and research and to have new, um to validate the new research if it is feasible or not.
Morris: I think the results will be validated by user or the user organisations
James: yes, yes, by the first step, by [pause] ***(Sub-state 1.1)***
[Some whispering in the background]
James: yes, by the action by the
[Tape ran out]
[Tape 4]
Morris: it is better to have it validated by partner 7. We have very good experts [Laughs]
[Paul clicks his fingers]
Ronnie: It will be much more security for
James: yes, yes, but I am thinking about the first contact. We are not going to call seven different persons. The first contact will be Adam. He will see if they are suitable. We are going to be in contact with the different contact person ***(Sub-state 1.1)***
[Can hear whispering]
James: [pause] different users
Morris: I do not agree with you, we have a communication, it should not be a problem. I think it should be collated work. ***(Sub-state 2.1)***
Ronnie: I see much more work as co-ordinating work.
James: Ok, so perhaps, from each user organisation one contact point? It has been made with Adam and partner 7
[Some whispering]
Ronnie: I think the co-ordination will be [pause] will be suitable, not involve all possibilities, as you want
[Annie and Fabian whispering]
Paul: You have the co-ordinator. So, you have the contacts
Ronnie: yes. ***(Sub-state 1.1)***
Paul: So, what you really need now, is just to make sure that what we are doing, is to start with the first steps towards the e-learning portal and the partner 7 site, or just the possibility to take it from there. Plus, I would like to come back to what you said about Mindleader's before. You wanted to place a link to Mindleader, so that maybe we could make use of the contract if it is still valid, we could all make use and try out the e-learning experience that they um make available.
[Fabian has a pen in his mouth]
Paul: But what I would like to know if whose responsibility is it, to have that out in the open
[Can hear whispering]
Paul: whose responsibility is it? It is partners 1 and 2
[Can hear whispering]
Paul: to start this e-learning portal. The very first steps on the partner 7 website? Will it, is that the way it works?

James: So, [pause] the responsibility of this activity is of the partners who are working on that. [James looks at his sheet of paper] So, according to my information, both partners 1, 2 and 9 and partner 7. Uh-huh, that is the information that I have, and is displayed in the contract.
Paul: uh-huh ***(Sub-state 1.1)***
James: So, this is the initial responsibility of us. And the work is the responsibility of the global project, and everyone on this table is able to participate on that.
Paul: I realise that, but I just wanted to clarify that ***(Sub-state 1.1)***
James: ok ***(Sub-state 1.1)***
Paul: that's fine, ok ***(Sub-state 1.1)***
James: Ok. [Pause]. More or less that is the work of this work package.
[Some own discussions taking place]
Thomas: what kind of evaluation are we going to use to evaluate the site?
James: What kind of evaluation system are we going to use to evaluate the site for the e-learning part?
[Some whispering going on]
Hazel: We can use the, we can continue to use the protocol that partner 8 Distributed. We think that, [pause] I think that it was very effective.
Thomas: So the questionnaire?
Hazel: But if you think, I mean, I think at some point we need to have a discussion about the partners involved in WP1.
[Some whispering]
Hazel: I did not get the German partners informing me that they had problems recruiting people, the French partners produced some interesting work, but maybe we can talk more about that, and I have not had anything back from the Italian partners. So we need to figure out how to make this work. [Pause]
Thomas: So to continue
Hazel: yes, yes, but we can change the protocol if people thinks it's too complicated ***(Sub-state 1.1)***
Paul: No, it's pretty good, it only takes time ***(Sub-state 1.1)***
Hazel: yes ***(Sub-state 1.1)***
Paul: and have to convince people
Mary: yes ***(Sub-state 1.1)***
Paul: as you mentioned during the coffee break, that you have some sort of incentive payment for the people that you recruit, that might help.
Ronnie: certainly ***(Sub-state 1.1)***
[Laughter from some of the partners]
[Some own discussions taking place]
Elsie: I would have thought you would have received more candidates.
Hazel: So did I, actually. ***(Sub-state 1.1)***
[Laughter again, Hazel, Mary, Elsie and others]
[Some own discussions taking place again]
Thomas: some are experts?
Hazel: yes, yes ***(Sub-state 1.1)***
[Own discussions taking place again]
Hazel: right, that's fine, good.
Elsie: would it be possible to send the questionnaire, Michael cannot find it.
Hazel: That's fine. I will send it to everybody. ***(Sub-state 1.1)***
[Own discussions taking place]
Elsie: maybe you send it to me and I will translate it into Italian]
Hazel: yes, ok. Yes, that is fine. ***(Sub-state 1.1)***

Planning a user group meeting

Hazel: Would it be possible to have a short meeting after lunch, with user groups partners, to discuss exactly how we are going to do this and what we need before we all leave
Paul: yes ***(Sub-state 1.1)***
Hazel: so we all agree, ok.
James: before lunch?
Hazel: I would say after lunch, but depending on ***(Sub-state 2.1)***
Ronnie: even before if we get through ***(Sub-state 2.1)***
Annie: yes ***(Sub-state 1.2)***
Paul: depending on when you finish?
Hazel: yes ***(Sub-state 1.1)***
Paul: if we finish before or if not after lunch
Hazel: yes, yes. ***(Sub-state 1.1)***
Thomas: ok ***(Sub-state 1.1)***

Structuring the meeting

Hazel: um, we still have the presentation about the analysis of the authoring tool. Do you want us to see that now?
Mary: or after?
Jack: coffee?
Hazel: ok ***(Sub-state 1.1)***
Jack: I do not know if it is ready yet. ***(Sub-state 3.1)***
Hazel: ok ***(Sub-state 1.3)***
Jack: Lucy had
Ronnie: I would to remind please, we also have the length of activities to present, and um [pause] also we are calling to explain what they did for the evaluation of that
Hazel: yes ***(Sub-state 1.1)***
Ronnie: and this is very important to evaluate this work, this work was in line with your
Hazel: yes, I would like to hear that, so ***(Sub-state 1.1)***
Jack: So maybe
Hazel: we have that first
Jack: we have coffee break then,
Hazel: yes ***(Sub-state 1.1)***
Jack: and after coffee
Hazel: we have Adam,
Jack: we have Adam [pause] and ***(Sub-state 1.1)***
Hazel: and then Mary again. And what about Charles[laughs] I want to hear more from Charles on voice xml [laughs]
Ronnie: and what about Thomas?
[Some laughter]
James: Adam, Thomas.
(Sub-state 4.1)
[Own discussions taking place]

[Getting ready for the coffee break

Work package 1, E-learning presentation

Jack: ok, so shall we go on? This Adam presentation is about e-learning
Adam: yes ***(Sub-state 1.1)***
Thomas: Ok, Adam is going to present you a typology, and I will continue with innovation and speak about most recurrent. I would like to say that I used 50 sites. I used branded system, it is a patented system. [Pause] which is established by WAI and I signed up with document of confidentiality, so I cannot present to you this system. ***(Sub-state 1.1)***
Lucy: but you can present your results
Thomas: But I will present the results of my study. ***(Sub-state 1.1)***
[Desmond says something and he has a smile on his face]
Adam: So we tried to [pause] to establish the typology, and it is very difficult because there is a lot of e-learning sites and [pause]
[Fabian whispers something to Annie]
Adam: you can call e-learning sites, it contains a lot of information. You can find courses and forums [pause] you can find interactivity between professors and
[Whispering in the background can be heard]
Adam: and students, and difficult to make a [pause] typology with this site. We classified this site in [pause] in one category, we [pause]
[Can still hear some whispering]
Adam: But we, we tried to establish the typology with this product. So, we established five categories, which are virtual library, [pause], um, online [pause] scholarly reports and educational sites, [pause] online en-cly-co=pedi-a
Desmond: yes, encyclopaedia. ***(Sub-state 1.1)***
Adam: yes, [pause] the plug in management system, the plug in management system, the professional training and to [pause] to businesses and to employees, and that's all. That is five. ***(Sub-state 1.1)***
[Whilst Adam is talking Morris is sitting backwards, in his chair concentrating]
Adam: So the virtual libraries [pause] with images of web page services, there has been recent growth in the number of virtual libraries. Virtual library is, [pause] permits to view millions of pages. [Pause] with the help of navigation tools and search engines. [Pause] adapted to your personal interest.
[Can hear whispering – I think it is the translator for Michael]
Adam: There are two aspects of this kind of site. [Pause] To construct, for the construction of this virtual library you have to [pause] first digitise all the documents, and all the important works. [Pause] and correctly organise them and index them to make, [pause] to enable the research. [Pause] and you also have to make it acc, um ,access, access-ible
[Desmond nods when Adam says Accessible] ***(Sub-state 1.1)***
Adam: by appropriate information technology. There is also another problem with that kind of site. [Pause] the problem is [pause] it offers rights.
[Someone says yeah] ***(Sub-state 1.1)***
Adam: copyrights, and in books and digital material. I cannot say that, um things that have um [pause] film, in public predicament.
Paul: To fall under the public domain, which is no longer under copyright
Adam: yes. [Pause]. The second category is online scholarly report, and educational sites –from primary to advanced education. You can find sites, which propose two kinds of, two types of [pause] track on a particular question. The simple way is to make a problem known through a forum, forum ***(Sub-state 1.1)***
[Can hear whispering – think it is the translator]
Adam: to which talk about the subject of your problem. And then you quickly have an answer, from a professor or student who are also on this problem, and can give you a personal answer and pretty efficiently answer your question. [Pause] you can also find sites when you want to release programs, a program of study, and have an answer about a particular idea. Or if you [pause] want to get the benefit from a meth, method, method-olog y
[Someone says methodology in the background]
Adam: methodological [laughs] sorry, um [pause] advice, um you can find story sheets, or outlines or [pause] complete courses.
[Desmond nods his head] ***(Sub-state 1.1)***
Adam: But e-learning in that type, in that kind of year, you can find a course with web cams and so, so, we cannot really [pause]. The third category is online encyclopaedias. [Pause] The position of cyber encyclopaedia [pause] is newly, is relatively new [pause] only a few months ago there was only English online encyclopaedia. But, now you can get French encyclopaedia, it is recent, recently findable.
[Desmond and Annie nod their heads] ***(Sub-state 1.1 x 2 evidences from 2 people)***
[Kevin and Paul whisper]
[Laughter]
Adam: on the Internet, and now we can find prestigious sources [pause] which are fairly comprehensive
[Can still hear some whispering]
Adam: and documents, and twelve [pause] and personalised courses, and to pass it, [pause] to, to participate, in a virtual classroom. [Pause] Until now, there, were only one software, almost only one software which was
[Can hear some whispering]
Adam: learning places, pace, excuse me, from Lotus IBM. But, recently we have, the growth of e-learning software is developed and is blocking our solution. The last category is professional training at business and employees
Desmond: uh-huh ***(Sub-state 1.1)***
Adam: There are three sectors, as been seen as the major users of training. Um, banking, industry and insurance. [Pause] Even if businesses has [pause] recognised the activity of e-learning
[Can hear whispering to Michael by the translator]
Adam: program there is program, when we try to put them, to connect it, we encounter two problems. The first problem is [pausing] the availability of computer equipment and the scale of information technologies. [Pause] That's all, for the typology.
Thomas: Ok, I am going to continue [says something in French] ***(Sub-state 1.1)***
Morris: In fact, if I may [pause] we found this typology was important to do this, to put this forward, because we wanted to make sure, the kind of site we would begin to work on, I think we clearly see it is not the focus of the work of this project. But at least two of them, the courses, the online courses, and also the tutorials for the training, for the trainers is also something we thought ought to be considered. [Pause] But, why [pause] now if I am understanding it clearly we are focussing on, on course, on online courses
[Can hear whispering – think it is the translator]
Morris: and I am thinking of course, of the problem we are going to put on the website of partner 7. Or are we going to include all of these five categories, for all sites.
[Pause]
Thomas: I think ***(Sub-state 1.1)***
[Lucy says something to Adam in French]
Morris: Shall I repeat [laughs] or are we all tired?
[Lucy says something in French]
Paul: I think we could probably include the encyclopaedia category right away ***(Sub-state 1.1)***
Thomas: yes ***(Sub-state 1.1)***
Morris: Virtual libraries as well?
Thomas: What?
Morris: virtual libraries as well
Paul: I would not be so sure, because an e-learning activity would probably require [pause] accessing all kinds of materials. And in order to do that you would most probably need a virtual library, even if it maybe small, it probably would require [pause] accessing all kinds of material, in order to do that, and you would most probably need a virtual library even it is small. ***(Sub-state 31)***
Lucy: Why encyclopaedia?

Paul. Because we could probably [pause] make use the ones which are already there, and we do not have to make use of our own.
Lucy: ah, yes, of course. ***(Sub-state 1.1)***
[Pause]
Lucy: Do they have links?
Paul: obviously ***(Sub-state 1.1)***
[Some own discussions taking place]
Paul: The teacher student interactivity, I think is a very important part, of an e-learning activity, which I could imagine [pause] difficulties of areas, and certainly something to look into in terms of our project.
[Whispering – think it is the translator again]
[Pause]
[Morris is clicking his fingers]
James: Can we introduce, like an input in the [pause] study you are carrying out?
Mary: uh-huh ***(Sub-state 1.1)***
James: I am not sure, if at this moment we have an answer to that, or we can include on that an analysis point in your study [looking at Mary when speaking]. ***(Sub-state 3.1)***
Desmond: Could you send us your presentation?
Hazel: I mean one way to consider it is do you think voice xml is going to help in these different areas? Because if you want to [pause] show [pause] where voice xml will help, we should be concentrating on those.
Ronnie: I have a question especially to Hazel
[Hazel gives a small laugh]
Ronnie: Why don't we take it the other way round, select the kind of activities we would like to make the research on and the experiment on, instead of excluding simply. The other way round would be we take some category and work on those. What do you think about this?
Adam: I think [pause] this classification, we had [pause] we have taken at least [pause] things that exist on the website, on the Internet. But the difficulty is to classify them, because each site, give, provides a services which is, [pause] which can be [pause] be classified in one of these categories
Mary: or more ***(Sub-state 2.1)***
[Pause]
Ronnie: In my opinion we have to become very clear [pause] a very clear area of work
[Can hear Mary whispering]
Ronnie: and this cannot be done excluding, [pause] it must be done selecting
[Can still hear Mary whispering to Hazel]
[Some own discussions taking place]
Ronnie: let's digest the question and take a bit of time
[Some laughter from partners]
James: in any case we can consider this point [pause]
Hazel: but can we come back to this question in the morning, because I think we are all getting tired, and I would like to hear about what Thomas has to say, and then what Mary has to say in her presentation on authoring tools is actually related to this question as well.
[Can hear some whispering]
Ronnie: So
Hazel: So, if we have all the material and then go away and digest it, and think and perhaps discuss over dinner and drinks and come back fresh in the morning.
Ronnie: Ok ***(Sub-state 1.1)***
Hazel: have a huge
[Laughter from Hazel, Mary and some other]
Hazel: Find a solution [laughs]
[Paul laughs as well, and so do some others, including Annie]
Hazel: yes partners 1 and 2 has the solution.
Thomas: There were some technical problems. There was a link to the portal and all of the texts of the links does not give explicit information about the document it comes out. Images without any attributes, this problem is the most important, um that images are used as a link. [Pause] Image maps [pause] are also second to accessibility, it is the best way to make an image map accessible, to cover a speech area, [pause] elements with the alt attribute.
Mary: uh-huh ***(Sub-state 1.1)***
Thomas: Frames with non-explicit tags or names [pause] scripts, and um [pause] tables and pages with multiple columns, [pause] it um often causes problems with visually impaired users. Screenreaders are generally displayed in a single value, and can be seen on the screen. So, the blind user is one line of each column of the new text. The text does not make any sense for it And, I add flash because I, um [pause] many sites
[Some whispering]
Thomas: such as flash are not accessible to visually impaired people. Concerning the conceptual programmes, there is a site organisation, [pause] in educational contents.
[Can hear some whispering]
Thomas concerning the educational contents, the best site, the service is often very disappointing. Problems are often with the link, and links to personal pages, which were not appropriate to student populations. Excessive charges for advice services and membership fees of contents, which we are still charged for. The homepage [pause] because it is the problem often of accessibility, [pause] and there is sites dedicated to one specific configuration, and it causes a lot of problems With e-learning websites, add to our lives a certain number of difficulties which can be easily overcome. Even, if some problems could be achieved by these different browsers, or screenreaders, some accessibility problems can only be solved by the website. Of 50 sites, 7 were accessible, 10 were some problem of access, 12 were difficult to access and 21 were not accessible at all. As for the content provided, it is the same remark I made for the educational content. So, I think that we have to start civil action, one site is not accessible, we have to send an e-mail to the webmaster, to inform them of the accessibility problems. Ok, and I would like to add, I need the help and collaboration of all of you to select international e-learning sites whose contents it turns out
[Can hear whispering – think it is the translator for Michael]
Thomas: accessibility will eventually need partnership with the commission. [Pause] Because I think that is the only way to get contents
Hazel: uh-huh ***(Sub-state 1.1)***
Thomas: and to make the web portal more interesting
[Hazel nods her head] ***(Sub-state 1.1)***
Thomas: for the
Ronnie: users
Thomas: for the users ***(Sub-state 1.1)***
Hazel: yes, absolutely, I agree. Can you just repeat of the 50 sites, how many were really accessible? ***(Sub-state 1.1)***
Thomas: 7
Hazel: 7 ***(Sub-state 1.1)***
Paul: can I?
Hazel: So, you could, sorry Paul can I just quickly say
Paul: yeah ***(Sub-state 1.1)***
Hazel: that we can put 7 immediately on the portal
Thomas: yes ***(Sub-state 1.1)***
Hazel: because they worked
[Some others say yes in the background as well] ***(Sub-state 1.1)***
Hazel: and we can say we tested them and all the others we have to get into and have discussions, fine Thank you. Paul?
Paul: The screenreader that you used to assess the sites with was Braille net software? ***(Sub-state 1.1)***
Adam: no, no I think it was Braille. ***(Sub-state 2.1)***

Paul: yeah ***(Sub-state 1.2)***
Adam: I find problems with the construction of tables
[Can hear whispering]
Paul: Why [pause] I do not know but it may well be a very popular system in France, but why did you not select something that is more widely used?
[Can hear whispering -think it is the translator]
Paul: I would imagine that [pause] in your evaluation on websites and their accessibility, you for example did not use any of the web tools available?
Adam: um,
Paul: you should probably, just [pause] as a e[pause] in an addition to your study, maybe you should just um [pause] one or two of the web tools are freely available for download to maybe try at least some of the more inaccessible websites again using some of the web tools, and I would not be surprised if the percentage change.
[Some own discussions taking place]
[Lucy asks something in French to Thomas and Adam]
Adam: I think the problem is [pause] the limit of the test, should [pause] we can find the program when we develop [pause] and normal use between [normal sight] [laughs when says this] [pause] if you, for people who are having problems
Desmond: uh-huh ***(Sub-state 1.1)***
Adam: project problems, you can get some things for Internet explorer, which will not work on Netscape because of compatibility between the two. And the problem, is we [pause] test the, the [pause] base or will we ignore all the other, system, [pause]
Desmond: we still do not understand what that is ***(Sub-state 3.1)***
[some people laugh]
Adam: can we ignore all the software which has been [pause] created before certain date and I think it is a program I think you can
Desmond: I understand what you had in mind, but when [pause] a software is umm, [pause] really freely available over the Internet and we should proof find this fact
[Whispering] – Annie says something to Christopher]
Desmond: for example, but I have another question, before we go to Hazel. The second site you ere just told us which were completely accessible, were they accessible in all priorities of WAI?
Adam: yes ***(Sub-state 1.1)***
Desmond: for 3 times the criteria
Adam: yes ***(Sub-state 1.1)***
Desmond: ah, ok ***(Sub-state 1.1)***
Thomas: with web tools we have the maximum of 1 [laughs] or 2.
Desmond: for web tools?
Thomas: yes ***(Sub-state 1.1)***
[Some discussions took place, which were not very audible]
Hazel: Could you just [pause]
Paul: when you make use of say, some of the web tools which are freely available, or for example the virtual cursor, which is built into jaws, um you can use those features, then obviously accessibility questions you look at from different angle. [Pause] Because if you try to work a site without those help mechanisms, they look very different, and the accessibility problems, will appear to you in a totally different light and that will also obviously change the demands you make.
[Can hear whispering. Think it is the translator]
Hazel: Can I just clarify, when you talk about the freely available webtools, what do you refer to? Are these things you use with Jaws? Do you?
Paul: Well, you could, but I mean Jaws has the new virtual cursor, built it ***(Sub-state 1.1)***
Hazel: uh-huh ***(Sub-state 1.1)***
Paul: but they are for other screenreaders, other web tools available, such as the Web Wizard or Web Formator, which do exactly that ***(Sub-state 2.1)***
Hazel: oh ok ***(Sub-state 1.2)***
Paul: They work just like the virtual cursor in Jaws.
Hazel: right, so this would be bringing the accessibility ***(Sub-state 1.1)***
[Annie whispers something to Christopher]
Hazel: up to the best level
Paul: right ***(Sub-state 1.1)***
Hazel: that you might expect from Jaws?
Paul: right ***(Sub-state 1.1)***
Hazel: right, thank you. ***(Sub-state 1.1)***
[Pause]
[Can hear some whispering – think it is the translator]
Hazel: Can I just ask of these 50 sites how many were in French and how many were in English? All were they all in
Thomas: 5 in English
Hazel: right ***(Sub-state 1.1)***
Thomas: the virtual libraries were in Spanish
Hazel: ok, good ***(Sub-state 1.1)***
[Hazel whispers to Mary]
Thomas: one in Spanish, one in Italian, two in Belgium language, and German.
[Pause]
Hazel: excellent. [Hazel has a smile on her face when she is saying this] Well, I think that is really interesting information to feed into the project. ***(Sub-state 1.1)***
James: Is it possible to include the presentation on the ftp site?
[Own discussions]
Desmond: will you put it on the ftp site? Ok
Thomas: yes ***(Sub-state 1.1)***

Work package 1, Overview of circulated report

Mary: Can you see that or shall we get some of the lights off?
Hazel: Actually it is ok ***(Sub-state 1.1)***
Mary: It's ok. [Pause] Well what I am going to present now is a very basic overview of the report which was distributed at the beginning of this week, and which is basically a draft review of the existing authoring tools. I am not sure if any of you have had the time to look at it, but you should have copies of this at least [laughs]. As I mentioned in my e-mail, this is just a draft, so when you get the chance to read it and if you have any comments. In this presentation I am only going to give you the high level features of some of the web and e-learning authoring tools, and some of the main concerns with regards to their accessibility. I also included a section about how e-learning ***(Sub-state 1.1)***
[Jack whispers something to Fabian and hands him a disk]
Mary: and also the course is being developed, and the people who were involved. Then I will [pause] go through some of the tools which are currently used for developing e-learning and then will cover some of the main features of the most widely used web and e-learning tools. I will then identify some of the accessibilty issues of these authoring tools. And, at the end I will present a very high level summary of the recommendations which we can present, which can be used for developing e-learning.
[Desmond nods while Mary is reading out the structure of the presentation] ***(Sub-state 1.1)***
Mary: Here, I probably need to mention that the report was reported by partner 3 and partner 8, and I am talking on behalf of both parties. Ok, the main concerns for the project in regards with the new e-learning authoring tools
[Hazel and Kenneth whisper]

Mary: we are first need to identify what are the major types of tools currently used and widely available on the market. We also need to identify, which, [pause] what are the more commonly used tools within those types, and after that we need to look at the main features which they provide for authoring e-learning content. And we need to study the accessibility of the tools, and answer the question of whether visually impaired authors can use the tools to develop e-learning.
[Can hear some whispering]
Mary: and the last question is to study the accessibility of the mark, of all the content that is produced using these authoring tools, and asking the question, do these tools encourage these authors to develop accessible e-learning components. So, there are two different types of accessibility. From the review we found that there are currently a wide, [pause] can you read that at the end? Just about
Hazel: just about ***(Sub-state 1.1)***
Mary: sorry.
[Hazel laughs]
Morris: no, I cannot read that. ***(Sub-state 2.2)***
[Hazel laughs again]
Mary: sorry about that. It is the ignorant party.
[Mary laughs and so do some other partners].
Mary: There are quite a number of [pause]of all [pause] different types of tools and packages that are currently used for developing e-learning. And we categorised them into six different types.
[Can hear whispering]
Mary: And the first type is the generic presentation and the slide shows tools like PowerPoint, they are still used for content only
[Paul says uh-huh] ***(Sub-state 1.1)***
Mary: however, they are very linear and non-interactive. Um, the second type of tools are traditional courseware development tools, like Macromedia or authorware tools. They usually, the contents of, um [pause] produced by this [pause] tools is not directly publishable online or users need to use the plug in for lets say, the authorware, content to be used. The third type is the general authoring tools, which many of us are familiar with
[Some people are whispering]
Mary: like FrontPage, Hotmetal pro along with Dreamweaver. Some of them are instructional like for courseware, like [pause] Course Builder, the extension to Dreamweaver. The third type are called rapid e-learning tools. They are tools, [pause] they are tools which are specifically developed to create e-learning content [Pause] And the output of them is html formats, like Java which is [pause], which are easily publishable online. Some of the main ones we looked at like [pause] Trainer soft, Rady Go and Dagro Max, ok. The fifth type are the learning management system, which like our French partners just talked about.
[Can hear whispering – Kevin says something to Desmond]
Mary: In the report you can look at [pause] um authoring facilities, which most of them usually have. And the final type are the learning management system, for the benefit of developing new authoring tool
[Kenneth has his eyes closed and hands on his face]
[Can hear whispering - Kevin and Paul]
Mary: which are the project, so that um types three, four and five of the authoring tools
[Can still hear whispering]
Mary: because they can be directly used to [pause] develop e-learning contents. So, I will briefly review the main features of this. First of all general web authoring tools, partner 3 has started reviewing accessibility of the most widely used web authoring tools, like Dreamweaever.
[Can hear some whispering]
Mary: I am aware of using, first of all, the W3c checklist for web authoring tools, to review HotMetal Pro, and I believe they will be reviewing some of the other tools as well.
[Kenneth opens his eyes again]
[Can hear some whispering still - Annie and Christopher]
Mary: The partner 3 also are producing at the moment, a checklist which is specifically targeted at the needs of the project, the project
[Can hear whispering - between Michael and Elsie]
Mary: and the checklist is looking at the accessibility of the tool, and the accessibility of the mark-up produced and any special functions of the tool. [Pause] And this checklist is based on the existing checklist like the one from WC3 as well. Ok, five poor authoring tools are rapid authoring tools, and they are basically developed for trainers and educators for people who are [pause] have not had any previous development experience to be able to put courses online, or convert existing material into online material, so then could facilitate such as e-learning templates and styles in order to speed up the process.
[Whispering]
Mary: The courses are usually built around the instructional method, for like timeline metaphor and booktype metaphor. They also include automatic mark up generation, and they automatically write the html and, um, therefore they do not require, any, or [pause] much knowledge or experience. They are usually [pause] um GUI interface, which is what you see is what you get interface, for generating the content, which often includes drag and drop and manipulation, which is quite inaccessible, because very often they are keyboards and alternatives functions which are [pause] are provided in the authoring tools.
[Annie nods her head] ***(Sub-state 1.1)***
Mary: They also include wizards for creating interactions, course structure and [pause] um, um, um for creating different assessments or including media like audio or video
[Can hear whispering]
Mary: and publishing the courses online. Again, the wizards are not very accessible, because they are very visual and also [pause], um rely on mouse interactions. And, these tools are [pause] widely used by instructors and trainers because they do not require much programming experience, which are quite easy to use.
[Annie nods her head] ***(Sub-state 1.1)***
[Kenneth looks tired and places his hand on the chair]
Mary: and the speed for the process of development, whether they have too many advantages in one of them, I am sorry about that. The main, the biggest disadvantage, of these tools is because of all the templates and forms, and the wizards that they have, um [pause] they restrict flexilbity of course content and the way that courses are developed. So, if you would like to develop an advances e-learning [pause] courses they are not very good at that.
[Can hear whispering]
Mary: And also for some of them, the output is is in a proprietary format, so if you would like to change the courses developed
[Can still hear whispering]
Mary: by using a different authoring tool, it is impossible to use for that.
[Can still hear whispering]
Mary: The fifth type of learning, authoring tools is
[Can still hear whispering]
Mary: the learning management systems, as has been said by our French partners, they basically provide an integration of a complete course website, which can be used not only by the students but also by the trainers and administrators as well. So, they provide password facilities, and uploading the content, also assessment and marking, [pause] and bulletin boards and chartrooms, and e-mailing facilities and things like this. They typically include authoring facilities for that, which are usually quite basic. Um, and the courses, [pause] or the content is usually designed looking at browser interface, basically within a Netscape environment or Internet explorer. They also provide, a step-by-step guide to support the creation of the different components, which again helps the educators create the courses quickly. Um, [pause] the core content, usually in the multimedia components, like audio or video, images they are creating outside of this learning management system, using specialised software. And, two of the major management's systems which are currently used by thousands of educational institutions are webct and blackboards.
[Long pause]
[Can hear whispering]
Mary: what, um in the review we found that
[Can still hear whispering]

Mary: the accessibility of the tools and the mark up, which is produced
[Can still hear whispering]
Mary: that, um [pause] some of the main general authoring tools have been reviewed independently. And there are links within the report, of, to the report, producing the results. Amongst, the e-learning authoring tools, only one has been evaluated for its accessibility. Um, so there is [pause] so there is a need for further research into the accessibility of the
[Can still hear whispering]
Mary: e-learning authoring tools
[Can still hear whispering]
Mary: because it is not the
[Can still hear whispering]
Mary: and the problems that the visually impaired authors can encounter using the specially e-learning authoring tools is not known. The accessibility of webct and blackboard have
[Can hear whispering]
Mary: has been tested using [pause] the WAI guidelines, and there are reports online, and again there are links with these reports, in the report. [Pause] The main accessibility concern as I have just summarised, and a few of them
Desmond: um
Mary: on this slide are old development of the facilities and techniques accessible, some of them are accessible, others are not. Do the tools support accessible authoring practice?
[Can still hear whispering]
Mary: Do tools support the creation of accessible e-learning content? Is the mark-up, which is generated, automatically accessible? Um are the media resources included in the courses accessible? Do they provide like alt text and facilities like this? And are the text chartrooms, and bulletin boards and other facilities provided in the courses produced? Are they accessible are well?
Desmond: Um, Mary
Mary: yes ***(Sub-state 1.1)***
Desmond: Did you prove the accessibility of the graphical user interface of the authoring tool, or was the user interface in html interface?
Mary: Um [pause] in regards, to which type?
Desmond: um, [pause] all of the tools, webct and blackboard
Mary: Umm, ok, both have been evaluated
[Someone whispers in the background]
Mary: We could not really have the time to evaluate them, but they have been evaluated by other institutions.
Desmond: But you took the guidelines by WAI?
Mary: yes ***(Sub-state 1.1)***
Desmond: ok, yes. ***(Sub-state 1.1)***
[Pause]
[Some whispering]
Mary: And there are links in the report for the findings
Desmond: ahh ***(Sub-state 1.1)***
Mary: yeah ***(Sub-state 1.1)***
Desmond: great ***(Sub-state 1.1)***
Mary: So you can have a look, for more information
[Can hear someone whispering]
Mary: On this slide I just summarised the recommendations which are, [pause] which we compiled in how to make an authoring tool accessible, and the features, and undermine the accessibility of the authoring tools, and the course content.
[Fabian whispers something to Annie]
Mary: So, in terms of the authoring tool accessibility itself
[Can still hear some whispering]
Mary: the main recommendations were to have accessible templates,
[Translator for Michael asks Hazel what is a template]
Mary: but, we have to make sure that the templates are accessible, and that the developments and the templates are accessible as well. And also, to include
[Hazel explains to the translator by whispering to him, what is a template]
Mary: all the actions that are included. And in terms of the accessibility of the course component, which are produced using authoring tools. We recommend that
[Can still hear Hazel whispering to Michael's translator what a template is]
Mary: the tools, which encourage the creation of text, if we want to includes images in other media in the course, which an authoring tool can do
[Translation to Michael what a template is]
[Hazel draws a diagram to show what a template is]
Mary: Also it can incorporate course content and instructions
[Can hear other people whispering as well]
Mary: in the environment. Also, the tool can incorporate guidelines, guidance on producing effective e-learning components that are accessible to all user. And they can also enable the synchronisation of all the accessibility. And, yeah
Charles: What do you mean by the accessible templates?
Mary: Right, these are
[Can hear Hazel talking about templates in the background as well]
Mary: I do not know if it will be helpful, but I mentioned to some of the other people here, that I have a trial version of one of the e-learning [pause] authoring tools, which has got a template as well. But, basically the templates are like forms for creating the tables
[Hazel nods her head] ***(Sub-state 1.1)***
Mary: which are like multichoice questions, or form filled questions, or different types of questions, and they are very much like visual, visual forms. And, you need to select the components from a combo box or different kinds of box, and as they are very much like on dragging or dropping or clicking on things with the mouse, that makes them inaccessible.
[Can hear whispering in the background]
Mary: I don't know how maybe, or how we can avoid this.
[Can still hear whispering in the background]
Mary: or how the design features can be improved, or the forms need to be simplified, or just presented in a different form, which is more accessible
[Hazel nods and says uh-huh] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
[Pause]
[Some whispering]
Mary: But you can have a look at this if you are interested, and see what templates were required.
[Some own whispering taking place with partners near to them]
Desmond: um, how big is the tool? Can you send it by e-mail to us?
Mary: Yes, and I can also include it on the website ***(Sub-state 1.1)***
[Can hear some whispering]
Mary: and you can download it from the website
Desmond: yes ***(Sub-state 1.1)***
Mary: and there are also links in the report
Desmond: yes, yes that would be very good. ***(Sub-state 1.1)***
Mary: Yes, in the report it includes the URL of all the ones, which are included ***(Sub-state 1.1)***

[Can hear whispering]
Desmond: ok, ok ***(Sub-state 1.1)***
Mary: you can find the webpages, the demo versions, most of the demo on the website.
[Some own discussions taking place]
Hazel: Ok, so I think there is some interesting um [pause] I am to tired to think of the word now [small laugh from Hazel] ***(Sub-state 1.1)***
[Some others laugh as well]
Hazel: mapping [said in a slightly louder voice] between the typology of the types of e-learning websites and the typology of the types of the e-learning authoring tools, it does not match perfectly. But, there is some considerable overlap there, so I think we should try and look at that together.
[Someone said uh-huh I the background] ***(Sub-state 1.1)***
[Pause]
[Some own discussions taking place]

Closing for first day of the meeting

James: Ok, so thank you to all the partners, for the presentations today, and it has been very interesting
[Some own discussions taking place]
James: and perhaps it could be worthy, to try, to try and make a summary of the conclusions, I hope. Um [pause] I have some ideas on mine, and I am going to tell you, so that we are all in the same line
[Someone in the background says uh-huh] ***(Sub-state 1.1)***
James: And we have identified some important topics, for example that we are, in front of us, a period of three months for the success of the project. In the same way, we have identified that we have around 15 days to prepare and present one of the most important deliverables of the project, which is the dissemination plan.
[Elsie has a smile on her face]
James: Um [pause] in that way, the session has been interesting, and has been identified some individual
[Some whispering in the background]
James: some possibilities of this deliverable. And, for example the standardisation, we have been
[Can hear some whispering]
James: some possibilities taken by Hazel,
[Hazel nods her head] ***(Sub-state 1.1)***
James: in the second case, regarding the activities regarding standardisation, Elsie, from partner 7 is going to, going to take that issue
[Elsie nods her head] ***(Sub-state 1.1)***
James: Regarding clustering, following the suggestion of the project officer, we are going to, we are going to assist one of the openings in April, May or June, and finally, regarding the webpage has been assumed that [pause] we are going to make the partner 7 page accessible, has been identified., Adam
Ronnie: It is accessible, it is accessible. ***(Sub-state 2.1)***
James: Ok ***(Sub-state 1.2)***
[Can hear people whispering]
Elsie: For blind people
Lucy: Yes for blind people ***(Sub-state 1.1)***
[Some people laugh]
James: Also, this morning, we have seen one of the demo's of partner 2, [pause] um regarding the work package 2, the plug in, it is not the final tools, [pause] that the project wants to develop.
[Christopher and Annie nod their heads] ***(Sub-state 1.1 x 2 evidences from 2 people)***
James: more or less, we are using, [pause] from, in the afternoon their have been very interesting presentations from several user requirements, [pause] it has been agreed that it is also important for the project
[Can hear some whispering]
James: Not only to do the web page accessible, but also to include let's say a gate for
[Can still hear whispering]
James: e-learning creating capabilities, the project has to do, if the commission gives us the time necessary. And also, has been an important, [pause] interesting discussion, um regarding the portal. Um, [pause], I must recognise that um perhaps, that the technological partners, um to say the partners 1 and 2, we have been not able to convince the users absolutely about the suitability of voice xml
[Can hear some whispering]
James: solutions that we are proposing, for, for [pause], for the difficulties, that the blind people have at the moment, for the reason that tomorrow morning, like an initial point we are going to make a presentation
[Can hear some whispering]
James: That that, the [pause] with your participation of course, indicating, if [pause] or if it is not worth it, we are going to use the reference document
[Annie nods her head] ***(Sub-state 1.1)***
James: for the presentation of Mary and Hazel informing of some difficulties, [pause] and we hope that tomorrow the opinion of the project will be more better
[Can hear whispering]
James: Than we see this morning, and pause [ok]
[Can hear some whispering]
James: that is more or less the main conclusions of the successful meeting of today
[Can hear some whispering]
James: and just to thank your patience, collaboration and especially [pause] partners 5 and 7 for [pause] hosting. And the time for the starting meeting tomorrow Jack
Elsie: 9
James: 9 ***(Sub-state 1.1)***
[Some people say yes in agreement in the background] ***(Sub-state 1.1)***
James: and we will start with the presentation of partner 9.
Meeting closed.

Attendees: Jack, Thomas, Adam, Paul, Kevin, Desmond, Lucy, Ronnie, Morris, Elsie, Michael, Michael's translator, Hazel, Kenneth, Mary, Sajal, Charles, Annie, Christopher, Fabian, James

Presentation on what the project voice solution can provide

Jack: We are starting with presentation of what Compolabras can [pause] some possibilities for accessibility, over the presentation from yesterday, from the presentation of Hazel and Mary
[Can hear some whispering]
Jack: So [pause] Annie
Annie: Good morning as we promised yesterday [pause] we will be giving a presentation, please excuse the spelling mistakes, and if it is not very nice, but, anyway what we try and intend to do in this presentation is to clarify a bit more, what [pause] the project voice solution could provide. Um [pause] and our value, to current screenreaders. This presentation will go on as follows [pause] first of all, we will talk a little bit about the objectives of the presentation, then we will go to the add value which
[Ronnie and Lucy Whispering - Lucy has a smile on her face]
Annie: the project voice interaction, [pause] will provide to the existing web design components. And, we will make a list of the general advantages that we, voice input and voice can from you voice can from your point of view, you
[Can hear whispering]
Annie: any ideas, you think we could make [pause] useful in our project. And, then a very brief review of the, of work package 3, that we started, [pause] this month. Partner 9 is the leader, we are working with IPT,
[Can hear whispering]
Annie: and us (partners 1 and 2), [pause] and our Belgium friends and our Italian friends. [Pause] The objectives of this presentation is to get a better understanding of the add value that the project solution would provide to screenreaders
[Paul whispers something to Kevin]
Annie: [pause] we will make a list of advantages that the voice solution will provide
[Can still hear Paul whispering to Kevin]
Annie: to go and navigator environment, and e-learning world, and we will invite you to brainstorm on how voice technology can help visually impaired people to work with the internet and to encourage them to join e-learning courses. This presentation is based on the following documents: partner 3 problems the visually impaired people may have on the websites, and partner 9 documents on what voice can do for visually impaired people
[Can hear whispering]
Annie: which is other side of the problem, [pause]
[Can hear whispering]
Annie: and the partner 8 slide presentation, that Mary and Hazel held on the situation of current e-learning courses, plus their experience in web technology as applied to
[Can hear whispering]
Annie: that is all information, which we got from the meeting we got yesterday. [Pause] I will continue now, summarising some points, that according to the documents we have been reviewing yesterday, are problems to the user, that the project solution [pause] intends to implement.
[Can hear whispering]
Annie: For instance, the form filling. We compared what the screenreader does compared to what our the project voice solution could do
[Can hear whispering]
Annie: and we detected that, in the case of the form filling, if the page columns are wide, then they have all the box labelled at
[Can hear whispering]
Annie: [pause] and they can access the screenreader, [pause] and the screenreader can read the task provided for each task.
[Can hear whispering]
Annie: And that would be enough for the user to fill the form, but our the project voice solution, would do what the screenreader does, but [pause] it would read the user input
[Can hear whispering]
Annie: but it would give confirmation perhaps to the submission
[Can hear whispering]
Annie: to the input provided, which will be done dynamically, so the user could check, not without having to
[Can still hear whispering]
Annie: through all the fields, what did he type, actually
[Someone says uh-huh in the background] ***(Sub-state 1.1)***
Annie: and also warn the user in case there is any mistake in the input provided
[Can hear whispering]
Annie: maybe spellcheck the input. [Pause]
Paul: Do you mean the application, [pause] the voice application through the spellchecking?
[Can hear whispering]
Annie: yes, yes. [Pause] If you want it, it could do it, using voice xml ***(Sub-state 1.1)***
[Annie whispers to Jack]
[Discussion between Annie, Christopher and Jack]
[Discussion between Desmond, Paul and Kevin]
Annie: Um, one of the things about form filling is that it is [pause] another area promising you
have a text area, is this divided into several paragraphs, and the screenreader jumps to a lot of the paragraphs, and through all of the paragraphs
[Can hear whispering]
Annie: but our the project solution switches in the form's mode, and having to go through all the text paragraphs
[Can hear whispering]
Annie: that would be less annoying for the user.
Paul: Say it again please.
Annie: Ah, yes, um [pause] in the document actually that Desmond filled [pause] where we just laid out some questions we had about screenreaders. ***(Sub-state 1.1)***
[Can hear whispering]
Annie: and he pointed out that when you have a text area, divided under several paragraphs the screenreader reacts by jumping to each of the paragraphs, and goes through all of the paragraphs, that our the project solution could switch into the forms mode, without having to go through the text paragraphs. [Pause]
Desmond: no, no ***(Sub-state 2.1)***
Annie: I believe that is what I read
Desmond: Yes, but screenreaders, actually do the same, they can also switch into the forms mode, ***(Sub-states 1.2 and 2.1)***
Annie: But, I am sorry, I think some of them, just some of them, IBM use
Desmond: just some of them, not all
Annie: not all ***(Sub-state 1.1)***
Desmond: that's true, yes ***(Sub-state 1.1)***
Annie: Yes, ok, yes, so, maybe something our the project solution can do, can cover that problem, for those users that do not have screenreader ***(Sub-state 1.1)***
Desmond: yes ***(Sub-state 1.1)***
Annie: have that functionality implemented.
Desmond: You mentioned some of it, in November last year that screenreader solutions should have
Annie: uh-huh ***(Sub-state 1.1)***
Desmond: you could have [laughs] a look at it.
Paul: You should have had a look at it before hand, not just now ***(Sub-state 1.1)***
Annie: um [pause]

James: This document is available?
Paul: This document has been available [pause] for quite sometime. ***(Sub-state 1.1)***
[Some whispering]
Paul: It was the basis for the London presentation
[Can hear some whispering]
Hazel: Is that the one you sent in November Paul?
Paul: Pardon?
Hazel: Is that the one you circulated in November?
Paul: yes ***(Sub-state 1.1)***
Hazel: ok ***(Sub-state 1.1)***
Annie: Some of the trickier points is the drop down menu
Morris: The what?
Annie: The drop down list
Christopher: uh-huh ***(Sub-state 1.1)***
Annie: lists and the drop down menus. The screenreader currently does not read such a list properly
[Can hear some whispering]
Annie: And generally
Kevin: No ***(Sub-state 2.1)***
Paul: What are you talking about? I am sorry about it is just not true. ***(Sub-state 2.1)***
Annie: Well that is what the document that we have been provided with said
[Hazel and Kenneth whisper]
Annie: I can show you the documents. [Pause] Do you disagree?
Paul: Yes, I do disagree ***(Sub-state 1.2)***
Hazel: yes we [laughs] ***(Sub-state 1.2)***
Annie: What
Ronnie: Perhaps you didn't [pause] see their document?
Annie: Um
Ronnie: Maybe you skipped [pause]
Annie: Yes, we, as I said at the beginning of the presentation, we based this work on the partner 3 ***(Sub-state 2.1)***
[Can hear whispering]
Annie: and the answering provided to the questions, which we asked about, about screenreaders
Kenneth: I, I, I think one of the issues here is that certain types of website designs can cause some of these problems. But they are caused by how poor the design of the websites are, not by the lack of the screenreaders. And a lot of what we have certainly put in, in our document, and the problems and issues visually impaired people may have on the website, is to do with a website design, not fundamental to screenreaders, if, if certain sites are well designed, then the problems do not occur.
Annie: What do you mean well designed?
Kenneth: well designed according to
Paul: according to WAI
Kenneth: according to WAI ***(Sub-state 1.1)***
[Mary nods her head] ***(Sub-state 1.1)***
Annie: yes, I believe that many of the developers not committed to ***(Sub-state 1.1)***
Kenneth: if they are not committed to
Annie: WAI guidelines
Kenneth: the WAI guidelines, how will they commit to your guidelines either, and that is the issue here
Annie: but
Kenneth: because
Annie: we are not giving guidelines
Kenneth: you are, you are asking people to design ***(Sub-state 2.1)***
Annie: we are trying to help them
Kenneth: to a standard, whether it is through a tool or not, we can provide a tool which can, you need to identify what is the advantage of voice in pattern output, not what is the advantage of having a tool [pause] actually force the issues around the WAI guidelines, just as easily, and very much more easily than bothering with voice, we need to look at what is the advantage of voice input and voice output, not how do we have to do with quality design and websites, and that is the issue here, which fundamental and why we are having these disagreements.
[Kevin and Paul whisper]
Annie: Then I should skip through these slides.
[Christopher and Annie whisper]
[Charles is working on his document]
Annie: Um, according to what you say Kenneth, we have identified for the voice input, for the navigation applications, is that we will have grammar definition, it is a set of words available to the user, which will speak to the computer and so that the computer can react to the voice input, so certain things you say like, home, next, help, [pause]
[Can hear whispering]
Annie: The computer will say [pause] will act according to the order and it will go to the main page, it will go to the next page, and maybe it will make it more interactive, the navigation, and to make it more fun. Plus when you have a window that is over [pause] overloaded with links, and when you [pause] the place you want to go, at first [pause] you would not have to move through all of the links, and to listen to all of the links, it will just say aloud the keyword
[Can hear whispering]
Annie: through that particular link
Paul: But if you know where you are going
Annie: yes ***(Sub-states 1.1)***
Paul: You can simply type in a search command, simply using your screenreader, because it does the same hing.
[Can hear whispering]
Annie: Yes, but ii think using your voice, it is more [pause] dynamic, and you would have to place your ***(Sub-states 1.1 and 2.1)***
[Can hear whispering - think it the translator]
Annie: yourself on the search field, it is more quick I believe
[Can hear whispering]
Kenneth: when you are talking about voice input have you looked at the various [pause] formations of dialogue [pause] especially a lot of work done in natural language, because this is where, voice input, this is where the state of art is lying, and is giving huge [emphasis on this word] amount of power to voice input, and to the way we can control navigation, because one of the issues around having keywords of this nature is that you have to tell the user what possibilities are
Annie: uh-huh ***(Sub-state 1.1)***
Kenneth: and that can be a very, very slow tedious process
Annie: it is just
Kenneth: through
Annie: it is tedious but ***(Sub-state 1.1)***
[Kevin whispers to Desmond]
Annie: but you have to train the computer to recognise your native language, but
Kenneth: No ***(Sub-state 2.1)***
Annie: If you want to, if you want the computer to understand the key words, the training process will be shorter
[Can hear whispering]
Kenneth: but you just suggested that, that a direct access to the

[Can hear whispering]
Kenneth: to the whole series of links, which would actually suggest
Annie: yes ***(Sub-state 1.1)***
Kenneth: not a large number of keywords
Ronnie: Can you
Kenneth: which are content orientated
[Ronnie gets you to talk to Paul - Desmond and Kevin are listening]
Kenneth: which actually means, um [pause] actually means a great deal of learning, to do
Annie: NO I do not believe so. If you want the computer to react to ***(Sub-state 2.1)***
[Can hear whispering]
Annie: to every single word you say
[Can still hear whispering]
Kenneth: No, no, we are working with dialogues ***(Sub-state 2.1)***
[Can hear whispering]
Kenneth: and we are building a corpus of information
Annie: uh-huh ***(Sub-state 1.2)***
Kenneth: and we do have quite some understanding of the needs and difficulties in this area. IT is not there is a great deal of complexity if you are going to control navigation, which is a web browsing system through voice input effectively
Annie: uh-huh ***(Sub-state 1.1)***
Kenneth: um, it sounds very easy, but infact
[Can hear whispering]
Kenneth: to be able to provide the user with the understanding of what is possible at any one point, and to give the power that you are suggesting is a complex dialogue to make sure that the voice input, that the voice interaction is working, um [pause] successfully and effectively for the user.
[Can still hear whispering]
Ronnie: Can I make a point
Annie: yes ***(Sub-state 1.1)***
Ronnie: um [pause] I still see that their are still some details which are a little bit [pause] unclear. There is a very important document, which has not been considered for your presentation, for any reasons it may happen. Personally, I think we should identify [pause] a [pause] strategy to solve, improve the situation. We all have a very, very great interest [pause] in making this project progress
(Sub-state 5.1)
[Annie and Christopher whispering]
Ronnie: To go to the evaluation with something, which is innovative. Because, if it is not innovative, they will not [pause] accept the continuation of the project, in my opinion. [Pause] The situation, where you are now is not novel, and this is the danger for the whole project, because this project has very good possibilities to develop, and it would be a pity, you would [pause] technical problems it would be. So, in order to progress with the project, [pause] would like to propose two possible proposals. Come back to the proposal I made yesterday to liase and have a practical, a practical understanding of what screenreaders do, shown by blind people.
[Kevin whispers to Desmond]
Ronnie using them, it should have been done in London, but apparently it was not enough, it may happen in life, not in the project. I think the other possible solution is that you organise a technical meeting with some of the user groups, for example our German colleagues, and whoever would to participate, the French people for example. [Pause] You take these technicians, these experts, to Madrid, to your, to your premises, and there you have a technical session at your expense, and you [pause] you clarify once forever, this situation.
[Can hear whispering]
Ronnie: Because until now there are some details which are not clear. I think if we go, if we continue to take, making this presentation
[Mary is whispering to Hazel]
Ronnie: which is made on incomplete set of data, we are loosing our time and we should concentrate our time on issues where we can progress. [Pause] and to leave this aside, take one month time to clarify the situation and you still have two months to implement that, [pause] the solution of this project. This is a strategy, which could help to solve the problem. I see the need of [pause] collaborating altogether to solve the project, because otherwise we will probably not continue working after the evaluation. Thank you very much.
James: Ok, thank you for you information. This is [pause] this is the point of view of the ***(Sub-state 1.1)***
Ronnie: I have consulted with the German colleagues before speaking, I know that the French user groups agree
[Can hear whispering]
Ronnie: I do not know what partner 3 think about this, sorry, I could not ask them. ***(Sub-state 3.1)***
Kenneth: That's ok, I would totally agree with you, I think it is desperately necessary, although as user groups, as user groups our key interest is in users, we do have a substantial amount of technical knowledge we could bring and help to move the whole discussion up. ***(Sub-state 1.3)***
[Kevin speaks to Desmond]
[Ronnie asks Michael and Michael replies]
Translator: Yes we agree ***(Sub-state 1.1)***
Hazel: Can I just make one slight change, a proposal, given that the entre is not part of the project, and we have [pause] in the project, a number of user groups who have a great deal of knowledge about how blind user use the web and these problems, and I think within the project we need to train [pause] um our colleagues to be expert blind users of the web, because I think this discussion is at the, is to much at the level of generality. [Pause] And by working a longside
[Ronnie whispers something to Lucy]
Hazel: a blind users, using the web, how that can be arranged
Desmond: with the presentation, something's
James: Sorry Charles, sorry
[Can hear some whispering
James: Sorry, one moment,
Charles: Well, I just wanted to know if you are going to listen to the rest of the presentation or some of my own ideas presented.
James: Ok, perhaps [pause] it could be directed to see the point of view of partner 9, and after that we can [pause] take the decision ***(Sub-state 3.1)***
Paul: ok ***(Sub-state 1.3)***
[Can hear some whispering]
James: ok ***(Sub-state 1.3)***
[This presentation from the Spanish partners was not completed]

Presentation by partner 9

[Own private discussions until Charles is ready to make the presentation]
Desmond: can you zoom in a little bit for us
Ronnie: I hope you will describe everything, I hope.
Charles: everything ***(Sub-state 1.1)***
[Paul, Hazel and some others laugh]
Charles: everything that I can think off. [Pause] I go back to the basics, right from the beginning
Hazel: Right ***(Sub-state 1.1)***
Charles: First of all GUI's Vs GUI's, um graphical user interfaces, we will start by Delphi's the web screenreaders that provide equipment that is basically graphically the user interface, the browser displaying html. With the screenreader you have linear access, with the GUI, you have more random access, not really random, but [pause] you can, pause] you can skim and jump a lot more easily. Well, we may have forgotten in our discussion [pause] that a voice interface is [pause] a more natural interface than [pause] than a graphical user interface, for visually impaired persons [pause] and another point is that voice interface is accessible to both visually impaired persons and normally sighted persons or it is not accessible at all
[Can hear whispering]'

Charles: So, if voice is accessible for me, it is accessible for everyone else as well. Well except deaf person of course. So, we have Compalabras and voice xml
[Annie nods] ***(Sub-state 1.1)***
Charles: and voice xml was originally written to voiceify web pages
[Can hear whispering]
Charles: I mean web pages that are accessed with a traditional browser, and voice xml was developed for applications that are accessed by telephone, but nevertheless [pause] the issues are there. Compalabras has several ways that you can add voice to pages, technically speaking this possibility uses Java script functions, which are supported by Compalabras. This allows you to access voice messages, to html elements, [pause] this can be useful for forms. [Pause] I do not know if it can be used for longer pieces of text
[Can hear whispering]
Charles: and as far as I know, it does not allow voice input. [Pause] the second possibility is using the
[Elsie is sitting with her arms crossed, she looks tired]
[Mary whispers something to Kenneth, pointing that the meeting agenda]
Charles: voice xml without the functions, and [pause] you can do that in two ways, you can hide the link in voice xml, which means you lift the graphical user interface and go to voice interface. And that kind of interface [pause] you can have voice input, but not keyboard input. [Pause] Another possibility would be to
[Paul looks fed up]
Charles: to load voice xml documents in the background when html pages load. When you do that it would be possible to combine voice input keyboard input
[Small discussion between Paul, Kevin and Detef]
Charles: The last method would be to dispose the Java script functions and voice xml, which can combine the advantages of both [Pause] On a small note [pause] in the future it may be possible t[pause] to intermingle voice and xml tags, but that is [pause] that is standards that allows you to do that, is still in development. [Pause] so we will not go into that any further. Now [pause] you use Complabras and voice xml, and html you still have to comply with WAI guidelines of course, because these pages still have to be accessible with other people with disabilities. [Pause] And, also techniques which are creating accessible voice enabling e-learning applications technically choose depends on the application and the functions of the document in that application. [Pause] um, [pause] now Complabaras speech synthesis has created, it also does that, so if you also want to use Compalabras
[Can hear whispering]
Charles: can you ask proficiently a visually impaired person to turn of his speech synthesis or screenreaders. Um, [pause] it seems quite unlikely, as screenreaders would have [pause] would make the computer more or less usable in the first place. So, if you want to do that you just use it to
[Can still hear whispering]
Charles: turn of the speech synthesis, and this is the value of Compalabras we described yesterday. [Pause] Um, so you have to convince users that we
[Can hear whispering]
Charles: provide functions, which are far above the screenreaders out now. Um, now so we will discuss some
[Can hear Desmond whispering]
Charles: possible advantages of voice, um first area are forms. Now, in a GUI meaning the browser, displaying html, forms are always embedded on the page with other content that may be witnessed y every user
[Fabian pats Christopher on the shoulder]
Charles: and on every occasion, for instance when you use search engines the [pause] maybe a lot of content before the form that you are not interested in. [Pause] IT may be advertising, [pause] also, when you move through the form [pause] and you execute to search, you [pause] you get the webpage with links
[Can hear whispering]
Charles: [pause] with many search engines you also get at the top of the page some of the same content [pause] before you entered your field.
Charles: so you have much superb information to go through all the time Now if you use the voice interface [long pause] you do not have superb content, and there is only no need, there is no need to [pause] repeat it, and it is necessary to read the form. The second aspect is that [pause] in GUI's, well in browsers displaying html you help the forms, it is more intelligible, and more content sensitive, um [pause] with voice xml [pause] and provide prompts with different content based on the number of times the user has been prompted. For instance, voice xml applications asks [pause] um, plenty of telephone numbers or the same telephone number [pause] and the user does not say anything.[pause] it is possible for the voice xml application could ask the user to re-prompt with a different prompt and maybe the user still does not say anything, then they provide another more elaborate prompt, which provides more help, and for [pause] instance it may ask you to do something else. [Pause] This kind of functionality, may be useful for error messages or [pause] or when the user enters the wrong kind of information [pause] and also adapt help and feedback.
[Can hear whispering - I think it is the translator]
Charles: And another aspect which is already mentioned yesterday, [pause] browsers and html pages [pause] um, when you enter, when you enter into the form it [pause] the webpage does not ask the user to confirm this data, and [pause] it does not repeat that information, asking for confirmation [Pause] And in voice xml application it is very easy to provide that kind of feedback.
Paul: Why do you think it is necessary to have that information repeated to you, really if I want to check whatever
[Can hear whispering]
Paul. I am entering into a font, I can turn the typing echo on
Charles: yes ***(Sub-state 1.1)***
Paul. and know what I am typing, because [pause] I consider it time consuming [pause] and unnecessary to have the information I already have typed in and [pause] have checked and have had it repeated to me.
Charles: Yes, if you entered in that information, [pause] with the keyboard ***(Sub-state 1.1)***
Paul: right ***(Sub-state 1.1)***
Charles: and you entered that information by voice, [pause] there maybe, you have to make sure, [pause] you need that kind of feedback [pause], the voice recognition was correct, and the data has been correctly recognised by the voice recognition system
Paul: uh-huh ***(Sub-state 1.1)***
Charles: Another area
[Kenneth whispers something to Hazel]
Charles: is speech synthesis, and as far as I know, um [pause] what I know about jaws is that numbers always come out the same way even if it is
[Can hear whispering - think it is the translator for Michael]
Charles: a telephone number, date, currency amount or something else. But with voice xml you can tag the pronunciation [pause] at the beginning of a number
[Can hear whispering - think it is the translator]
Charles: So if it is a telephone number, you can define it and say it is a telephone number, and it is for seven digits, and dates and currency amounts
[Mary whispers something to Kenneth - she asks about the advantage]
[Pause]
Charles: That is the advantage, [pause] now I know some of the things I have described are possible
[Mary whispering to Kenneth still]
Charles: with html and some very clever Java scripts, um the kind of Java scripts which are in use now. [Pause] But the trouble is
[Mary still whispering to Kenneth]
Charles: that possibility is not relevant if nobody uses it, no web developer uses the possibility, um [pause] the problem with that is that kind of feedback [pause] is difficult to write, and if it is difficult it [pause] most developers, um [pause] would not provide that kind of help. [Pause] So, so user cannot benefit from it. [Pause] So it is difficult to do, developers will either not do it all,
[Fabian says something to Christopher and Annie whispers]
Charles: so nobody benefits from it, or they will look for a new technology, which allows it [pause] to do it more easily. Even though, that is common from the developers point of view, but does influence
[Desmond whispers to Kristen]
James: Thank you Can I remind you Hazel for your explanation
Ronnie: Can I, can I
Hazel: Ronnie?

Ronnie: Can I ask a clarification or question please
James: yes ***(Sub-state 1.1)***
Ronnie: If I understood [pause] correctly your presentation
Charles: uh-huh ***(Sub-state 1.1)***
Ronnie: This is something you are presenting something, which already exists
[Can hear whispering - think it is the translator]
Ronnie: Um [pause] that means you are talking about what the voice, what voice xml can offer
Charles: yes, yes voice xml can do that ***(Sub-state 1.1)***
Ronnie: where is [pause] the innovation?
Charles: ah
Ronnie: because as I said, as I tell you before [pause] when we go, go to [pause] to the evaluation stage of our project, and we talk about [pause] this, we have to show them we are ware of what exists very well
Charles: uh-huh ***(Sub-state 1.1)***
Ronnie: and that we know exactly where and how we want to improve
Charles: uh-huh ***(Sub-state 1.1)***
Ronnie: what is existing
[Can hear whispering - think it is the translator]
Ronnie: into what direction we are moving and developing. Is it correct when I say [pause] that at present you have shown something
[Can hear whispering still - think it is still the translator for Michael explaining what is being said]
Ronnie: which already exists, and not something which has to be, be [pause] produced
[James listening attentively while Ronnie was talking]
Charles: Well, it can only exists in telephony applications, not mobile browsers, that is a new thing ***(Sub-states 1.1 and 2.1)***
[Christopher nods his head] ***(Sub-state 1.2)***
Ronnie: uh-huh, I see ***(Sub-state 1.2***
Charles: That is completely new ***(Sub-state 1.)***
Hazel: Can I also address that issue in a slightly different way
[Lucy nods] ***(Sub-state 1.1)***
Hazel: but, [pause] it seems to me you presented very good arguments about [pause] um
[Can hear whispering]
Hazel: what the advantages of voice xml would be in three different areas. First of all you talked about the natural integrity of
[Can hear whispering – think it is the translator]
Hazel: of voice
Charles: uh-huh ***(Sub-state 1.1)***
Hazel: Rather than [pause] the keyboard
[Kenneth nods and says yes] ***(Sub-state 1.1 x 2 evidences, verbal and non-verbal)***
Hazel: which is true for both sighted people, but particularly for visually impaired people, and I think that is the strongest argument
Paul: yes [Paul nods his head as well] ***(Sub-state 1.1 x2, verbal and non-verbal evidences)***
Hazel: you also talked about context sensitivity and speech synthesis, but it seems to me that the strongest argument is can we provide a more natural interactivity for blind people than sighted people?
[Can hear whispering]
Hazel: and that really ought to be at the heart of this project
[Kenneth nods his head] ***(Sub-state 1.1)***
Hazel: because it is the link between voice xml and e-learning
Kenneth: uh-huh ***(Sub-state 1.1)***
Hazel: because what is it about e-learning that is really difficult or will be very difficult for visually impaired people, is the high level of interactivity
[Mary and Kenneth nod their heads. Mary and Kenneth say uh-huh as well] ***(Sub-state 1.1 x 4 evidences from 2 people, verbal and non-verbal)***
Hazel: Now when I first read your document yesterday, one of the things that worried me very much about what you said, had not come out in the project before is that [pause] no, that is not true. But, one of the things worried, me because I read it yesterday [small laugh] was you said that designing a voice interface is completely different from designing a GUI or webpage.
[Kenneth nods his head] ***(Sub-state 1.1)***
[Can hear whispering – think it is the translator for Michael]
Hazel: And by implication the people, who are designers or web pages, won't be, [pause] I do not think you give to a webpage designer a voice application because it is different
[Someone says uh-huh] ***(Sub-state 1.1)***
Hazel: Could we argue, could we make something whereby
[Can hear whispering – think it is the translator]
Hazel: where you get to the points of high interactivity in e-learning applications, where there is a form, where more importantly, there is a [pause] a self paced quiz, to see if you have learnt the information. These points of high interactivity, could we provide a, a [pause] a wizard or a template, of [pause] if you want to have a longside the graphic version of your sighted users, a much more acceptable, accessible, natural version for the [pause] visually impaired users.
[Can hear whispering – think it is the translator]
Hazel: This is where the project authoring tool, comes in and it takes you through how to produce it in voice and
[Can still hear whispering – and think it is the translator]
Hazel: as a little voice application which is [pause] sits alongside the
[Paul, Desmond and Kevin whisper]
Hazel: graphic one for the visually impaired users, and you do not have to be an expert in voice applications to use
[Can still hear Paul, Desmond and Kevin whispering]
Hazel: this, because that is the added value, of the project authoring tool, so it would take you through doing that
[Can hear whispering – think it is the translator]
Hazel: it is a small additional overhead
Kenneth: uh-huh ***(Sub-state 1.1)***
Hazel: for the e-learning author. [Pause] But what the project is offering you is a quick and easy way of doing that
[Can hear whispering]
Hazel: because it will be an application, um [pause] that you go of the webpage. [Pause] You use it and it will not interfere with the functionality that you have developed on the webpage. Does that make sense?
[Someone says a little bit] ***(Sub-state 1.1)***
[Hazel: yes, yes and gives a small laugh] ***(Sub-state 1.1)***
Hazel: Kenneth? Kenneth did it make sense to you? [Gives a small laugh]
Kenneth: It certainly made sense to me ***(Sub-state 1.1)***
Paul: It does not make sense to me ***(Sub-state 2.2)***
Kenneth: This is a critical sort of area, where voice interactivity makes a real difference. At the moment, much of what we have been talking about is looking at ways in which, yes there were some problem areas, and [pause] yes, most of what you are talking about is actually saying that, [pause] using, um, if were to use Java script, we could certainly do a majority of what you were talking about, certainly context sensitive, it is just certainty duplicating everything, what is out there, and slightly better. But it is not highlighting where is it that voice really has given us an advantage. And in terms of what Hazel said, as an example area, it is a hugely important area, which can make a significant difference in this particular sector we are talking about e-learning, and we need to look at other examples within e-learning and [pause] I am not at expert in that area
Hazel: uh-huh, uh-huh ***(Sub-state 1.1)***
Kenneth: and say, well ok, voice is not a matter of [pause] duplicating what is available in a browser situation of e-learning. But in another way, and in another entire way, voice gives us a presenting, an interacting, this type of information, this type of task you are trying to perform. And, that is what we have to do, that is what we really have to [pause] um, brainstorm around, where is, where are some other areas, because unless [pause] unless there are

going to be some dignicant areas where voice, [pause] voice as voice really gives us a n advantage, then the project is not offering the designers much.
[Pause] The sort of examples you have picked out
[Kevin, Paul and Desmond are whispering]
Kenneth: [pause] yes there may be some small advantages, but there are also some huge disadvantages around, [pause] it does not give us an overall benefit. Umn, the sort of thing that Hazel just spoke about gives us [pause] a huge overall benefit
[Mary: uh-huh] ***(Sub-state 1.1)***
Kenneth: and that is what we have to look for. And that comes back to Ronnie's question where is the true innovation
[Paul, Kevin and Desmond are still whispering]
Kenneth: [pause]
Hazel: that you [laughs] [Hazel has a smile on her face as well
[Pause]
Hazel: and i think, if I can just make another quick point. The key Mindleaders
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: have tried to make, their e-learning courses accessible, and one of the ways that they have done that
[Can hear whispering – think it is the translator for Michael]
Hazel: is they have turned off, a lot of the interactivity for the visually impaired people. If you compare the version for the sighted people and the version for the visually impaired people
[Can hear whispering – think it is the translator for Michael]
Hazel: they have not known how to give that interactivity
[Mary nods and says yes] ***(Sub-state 1.1 x 2 –spoken and on verbal evidence)***
Christopher: uh-huh ***(Sub-state 1.1)***
Hazel: So, they just turned it off. That is a completely unacceptable situation [giving a small laugh] both morally and practically
[Paul laughs]
Hazel: So, what is the point in doing that?
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: So, we must capitalise on that
[Someone says uh-huh] ***(Sub-state 1.1)***
Hazel: and [pause] people clearly developing e-learning material now do not know how to do the interactivity. And, I do not think [pause] the way to do the interactivity for visually impaired people is tinkering around, with [pause] how you navigate a form or something
Paul: uh-huh ***(Sub-state 1.1)***
Hazel: I think it would be much better to say, if you want to do a form, or a [pause] multiple choice quiz, go off to the project wizard
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: do your Visual one as you would normally do it, go off then to the project authoring tool wizard and then you can use your expertise in how would you do this by voice, do not worry about how it is done in a visual form
Paul: uh-huh ***(Sub-state 1.1)***
Hazel: show that the authors can really produce a natural voice based interaction
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: That might be different, quite different to what the sighted user gets, but optimises for the blind users.
[Can hear some whispering in the background]
[Pause]
Hazel: and I think it then, [pause] I think it makes your task easier, because then you can really go for the advantages of voice in that part
[Can hear some whispering]
Annie: yes ***(Sub-state 1.1)***
[Pause]
[People are engaged in some of their own discussions]
Hazel: Mary has just made a very nice practical solution for one
[Someone says yes] ***(Sub-state 1.1)***
[Some people are still engaged in their own little discussions]

Describing problems experienced with an e-learning course

Hazel: one of the people we had in last week, who did one of the Mindleader's courses, why don't you describe the problem we had.
Mary: Ok. On one of the self assessment questions, it was kind of a little complicated, he struggled quite a bit to figure out the actual placement of the [pause] of the different questions and what was required as well ***(Sub-state 1.1)***
[Can hear whispering – think it is the translator for Michael]
Mary: and one of the problems was that Jaws kept saying in one of the text fields, input text where it was expecting numbers and things like this. SO, the user had quite a bit of a problem, first of all working out, what was required, what was on the screen, and what input was required, as well. So, my suggestion is, if you would like to have a look at this page, only this page, at the self assessment question, and probably try to re-design it using voice xml, and in order to improve the interface and maybe we can compare, afterwards, the use of the original form
[Someone says uh-huh] ***(Sub-state 1.1)***
Mary: and the new form, and hopefully observe an improvement
Paul: excellent ***(Sub-state 1.1)***
Mary: yes, yes that is only one page
Hazel: If you, if we had a different screenreader or had a better
[Can hear some whispering]
Hazel: user, he might have been able to get around it,
Mary: yes ***(Sub-state 1.1)***
Hazel: but I do not think that was not the issue
Mary: yes ***(Sub-state 1.1)***
[Kenneth nods his head] ***(Sub-state 1.1)***
Hazel: because I think we have a real person and we have this information on videotape
Mary: and we can
Hazel: We can send you the videotape
Mary: yes ***(Sub-state 1.1)***
[Paul and Kevin whisper]
Hazel: and then I think it is the functionality, to say right, designer, a voice based version which would really works
Mary: yes ***(Sub-state 1.1)***
Annie: I think that would be good, because we can see the problem [gives a small laugh] ***(Sub-state 1.1)***
Hazel: yes ***(Sub-state 1.1)***
Mary: yes ***(Sub-state 1.1)***
Annie: in real-time
Mary: yes, yes ***(Sub-state 1.1)***
Hazel: and then
Annie: because I believe that the technicians
Hazel: ok
Annie: we do not realise
Mary: yes,yes
Hazel: yes
Annie: the visually impaired persons, student's face
Hazel: but, then the perfect thing, the wonderful thing is that we can go to the review and say here was someone

Annie: yes ***(Sub-state 1.1)***
Hazel: struggling
Annie: yes, to show ***(Sub-state 1.1)***
Hazel: yes to show them the video and then we can show them the project solution ***(Sub-state 1.1)***
Paul: yes ***(Sub-state 1.1)***
Hazel: and then to have one of the blind people
Annie: yes the project ***(Sub-state 1.1)***
Hazel: use it and show that it [pause] it works now.
[Can hear whispering]
Hazel: And, also I think if that, [pause] is, if that is to do with forms, it is then the beginning of the
Mary: template
Hazel: the things for doing the authoring tool
Mary: uh-huh ***(Sub-state 1.1)***
Hazel: to help people with forms
[Can hear people whispering]
Annie: uh-huh ***(Sub-state 1.1)***
[Lucy, Jack and James are listening attentively]
Hazel: [pause] um, [pause] yes

E-learning and voice

Jack: Um, I think this is a very important moment
Hazel: yes [gives a small laugh] ***(Sub-state 1.1)***
Jack: in the project, and I would like to understand, and I think we need to understand your
[Can hear some whispering]
Jack: your, [pause] thoughts and opinions now.
[Can hear whispering – think it is the translator for Michael]
Jack: and correct me if my understanding is that we are deciding now. [Pause] I understand now that e-learning is [pause] one or more where voice interactivity
[Can hear whispering – think it is the translator for Michael]
Jack: in e-learning where voice can provide more help
[Can hear whispering – think it is the translator for Michael]
Jack: please correct me
Hazel: yes, yes ***(Sub-state 1.1)***
Kenneth: There are aspects of e-learning
[Lucy nods her head] ***(Sub-state 1.1)***
Kenneth: where voice
[Hazel and Jack say uh-huh] ***(Sub-state 1.1 x 2 people provide evidences)***
Jack: so
Kenneth: where voice
Jack: where once interactivity is very important,
Kenneth: uh-huh ***(Sub-state 1.1)***
Jack: So this one place it is very clear, it is innovative and a great help for [pause] for [pause] for accessibility. I [pause] I would even say, I was thinking that sometimes we are only thinking about blind people and
[Can hear whispering – think it is the translator for Michael]
Jack: and sometimes I think voice would also help, for everyone
Hazel: oh, yes ***(Sub-state 1.1)***
Kenneth: yes ***(Sub-state 1.1)***
Lucy: yes ***(Sub-state 1.1)***
Jack: at that moment
Hazel: yes ***(Sub-state 1.1)***
Jack: So,
Hazel: that's ok
Jack: So another advantage for you also
Hazel: uh-huh
Jack: That is very important for [pause] for pushing designers to do that. It is not just for blind people it is for everyone
Hazel: uh-huh, that's fine, ok ***(Sub-state 1.1)***
Jack: So, I, I think that is clear, but then, we go back maybe with the original idea, and that was the [pause] authoring tool for just webs. Are we saying now it does not make sense to [pause] an effort in that direction because most of the things are done? [Pause] or we are thinking to do both things. One is not innovative, should we just concentrate on e-learning and forget about [pause] an authoring tool for a general web page
Ronnie: No ***(Sub-state 2.1)***
Jack: No, I heard no ***(Sub-state 1.2)***
[Hazel laughs]
Jack: please explain and [pause]
Paul: No, I mean the idea, [pause] to have an authoring tool, is quite alright, along as you ***(Sub-state 2.1)***
[Can hear whispering - think it is the translator for Michael]
Paul: as long as you use this to produce xml content
[Kenneth nods] ***(Sub-state 1.2)***
Paul: From what, um [pause] Mary presented yesterday, we could see there are accessible, or at least partly accessible authoring tools out there, so we do not have to go and re-invent the wheel, by [pause] developing, or you have [whatever] the Spanish partners do not have to [pause] re, to make a completely new authoring tool
[Fabian nods his head] ***(Sub-state 1.1)***
Paul: Just for html, stuff, but an authoring tool which would then turn out xml, voice xml content
[Can still hear whispering and think it is Michael's translator]
Paul: that I think would be, at least that was my original understanding that you wanted an authoring tool for voice
[Someone says uh-huh in the background] ***(Sub-state 1.1)***
Paul: for voice xml and not just a plain old regular authoring tool.
[Pause]
Paul: OR am I wrong there?
Kenneth: I think it also goes back to that question that Charles talking about, that VUI is significantly different from a GUI
Charles: uh-huh ***(Sub-state 1.1)***
Kenneth: and therefore the authoring tool will be aimed at the VUI
Paul: right ***(Sub-state 1.1)***
Kenneth: and that is where again, where we into the innovation. At the moment, xml exists, and it exists primarily for telephone access, and I am not sure what tools exist around voice xml to make that a reality
[Kevin and Desmond are whispering]
Kenneth: Um, [pause] but there is, there is certainly room, but we must not [pause], I think the mistake we made up to now is trying to simply duplicate what is in a GUI and
[Desmond and Kevin still whispering]
Kenneth: and as Charles said voicified

Hazel: uh-huh ***(Sub-state 1.1)***
Kenneth: that is not what this is about
Ronnie: uh-huh ***(Sub-state 1.1)***
Hazel: uh-huh, uh-huh ***(Sub-state 1.1)***
Kenneth: and that us
Ronnie: very clear
Kenneth: and that is a critical area, so we need to turn our attention away from some of these issues, and html things, because a vast majority of them are page design issues anyhow
[Can hear whispering]
Hazel: and that is very innovative
[Can hear whispering]
Hazel: saying, because there are always attention to try and design something, which will be best for visually impaired people, but then it has to be different for what we do for sighted people, and then you separate the visually impaired people and the sighted people
[Someone says yes in the background] ***(Sub-state 1.1)***
Hazel: So, for example, when I worked on the project where we designed an interface for windows 3.1, the first big version of windows, and we had lots of arguments about, well we can make it better for blind people the interaction, but then we move them away from how their sighted colleagues are using the systems so they would not be able to talk to each other. It seems to me what you can do here is
[Can hear some whispering]
Hazel: by [pause] doing what Charles suggested, bedding voice applications in the web pages in the appropriate points
Charles: uh-huh ***(Sub-state 1.1)***
Hazel: where [pause] the visually impaired users are really going to
[Can still hear whispering]
Hazel: disadvantaged, by the visual interactivity. You keep everyone at the same application, and just branch people off when they really need to, I think that is what I would argue
Kenneth: uh-huh ***(Sub-state 1.1)***
Hazel: quite different solutions to what other people have tried
Kenneth: uh-huh ***(Sub-state 1.1)***
Paul: yes ***(Sub-state 1.1)***
Ronnie: I have two remarks. Remark number 1 [pause] their is a communication of the commission which is going through the European institutions recommending [pause] the adoption of WAI guidelines for websites. [Pause] What is interesting, interesting is, number 1
[Kevin whispers something to Desmond]
Ronnie: that it is recommendation, number 2, that many countries are not complying still with the WAI guidelines in their public websites. Without taking about the private
[Can hear whispering - think it is the translator for Michael]
Kenneth: websites. So, WAI guidelines are far [emphasis on this word] far away, from being implemented, so we should not take it for granted that this problem has been solved.
[Can still hear whispering - think it is the translator for Michael]
Ronnie: In many countries they do not think about complying with WAI guidelines unfortunately
[Can still hear whispering - possibility from the translator]
Ronnie: but it would be a fight for us
[Hazel laughs]
Ronnie: Number 2, [pause] this solution as it has been correctly said by our friend
[Can hear whispering]
Ronnie: will not be, and this is a very very important issue., will
[Ca hear whispering - Fabian is saying something to Christopher
Ronnie: and not be exclusively answered, at the advantage of blind or partially sighted users, so we do not speak about the 7,4 million people in the European Union, we
[Can still hear whispering is Desmond and Fabian]
Ronnie: we think about [pause] maybe, maybe 15, maybe 18 million people, and this if it is commercialised, it could be useful even for elderly people and for people for other disabilities
Jack: Children
Ronnie: So, I, I think here is the turning point we should [pause] build on and [pause] I think we have identified the something, very important, ok
Jack: So, I think that things are
[Can hear whispering in the background]
Jack: things here are now clear with, we know where to go
Annie: Yes ***(Sub-state 1.1)***
Jack: Um [pause] so, I think, we are happy with that. We are just [pause] telling Kenneth, how the original for this project was [pause] we had a solution with voice and [pause] we immediately thought ok, this could be perfect for blind people This is a very good solution, so we decided to go with you and [pause] study the project and you
[Can hear whispering – think it is the translator for Michael]
Jack: and we were [pause] on the sky and heaven, thinking that this
[Eleanor has a smile on her face]
Jack: and it is really good, and your [pause] participation was, in this project very important for us, to know, what actually are your needs
[Can hear whispering – think it is the translator for Michael]
Paul: You have
Jack: You put us now on the ground, and we now understand I think what your needs are and these things
[Can hear whispering – think it is the translator for Michael]
Jack: and what the state of the art is and where we can go, [pause] so I thin we can [pause] um now [pause] improve our, our work. That is very important to go in the right direction
[Mary whispers to Hazel]
[Morris puts his hand up]
Jack: Morris ***(Sub-state 1.1)***
Morris: You can ask us because even in the time, [pause] in front of us
[Someone says uh-huh in the background]
Morris: even with the fact that we identified, one major feature, which is [pause] that voice provides a high level of natural interactivity. And, I think that if we want to show something, it should be based on this very last finding, or
[Paul has a smile on his face]
Morris: um, adding just a page of text, with, Umn websites of e-learning, on e-learning. There is not really fit for doing this idea, in this morning
[Lucy nods her head] ***(Sub-state 1.1)***
Jack: uh-huh ***(Sub-state 1.1)***
Morris: So, I think we should, we should adapt it to what we said this morning, and find something where we can show the advantage and that should be something where we need this natural interactivity to be shown
[Jack nods his head and says uh-huh] ***(Sub-state 1.1 x 2, spoken and non-verbal evidences)***
Jack: um, ok
Ronnie: very good ***(Sub-state 1.1)***
Jack: I think that is clear, if we just [pause] take your partner 7 page that is just there and out voice
Ronnie: that would not be very interesting ***(Sub-state 2.1)***
[Lucy nods her head] ***(Sub-state 1.2)***
Ronnie: not very interesting
Jack: That is what, what we can take another example or

Ronnie: um, better
Jack: Yes, but I thin your example
Mary: hmmm
Hazel: But I think, I think what Mary and I need to do is [pause] find you a number of examples like this
Annie: yes ***(Sub-state 1.1)***
[Someone else says uh-huh in the background] ***(Sub-state 1.1)***
[Lucy nods her head] ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: obviously, I just wanted to say, this one just came to mind
Mary: yes ***(Sub-state 1.1)***
[Can hear some individual comments about the agreement]
Hazel: but then, we could, I think you should still make the partner 7 webpage voiced, I think that would be
Annie: yes ***(Sub-state 1.1)***
Hazel: I think that is a good action, and idea. But then [pause] when we were talking yesterday we talked about ***(Sub-state 1.1)***
[Paul is clicking his fingers]
Hazel: but the idea of having of the web partner 7 page , we add another page
[Paul nods] ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: which is the portal
Annie: yes ***(Sub-state 1.1)***
Hazel: Now one thing maybe we can have their, is information for authors, e-learning authors about making e-learning materials accessible to visually impaired people
Paul: uh-huh ***(Sub-state 1.1)***
Hazel: and we could have some of these examples to show the problems, and then the project solution, if, [pause] if you are doing, well,. [Pause] whether they are all about e-learning or not I keep changing in my mind, so I keep talking about e-learning [gives a small laugh] but it also applies to other areas of the web, maybe we should stick to e-learning. But, [pause] if you have a multiple
[Paul clicks his fingers again]
Hazel: choice test or whatever it is, or was
Annie: yes ***(Sub-state 1.1)***
Mary: yes ***(Sub-state 1.1)***
Hazel: and this is what the problem was
Annie: this is the solution
Hazel: this is how voice can help. So, I think [pause] for the moment, I think that would be a good thing to start on and having on the portal, and to show at the review, in Brussels. And it would be a good thing for the portal to have in the long run anyway ***(Sub-state 1.1)***
Paul: yes [Nods his head as well] ***(Sub-state 1.1 x 2, spoken and non-verbal evidences)***
Hazel: information for all authors
Annie: Now I have a much clearer idea
Hazel: yes, ***(Sub-state 1.1)***
Annie: it is now more concrete to work on
Hazel: yes, yes ***(Sub-state 1.1)***
Annie: not just general
Hazel: yes, I should have said obviously with the
[Can hear whispering – think it is the translator for Michael]
Hazel: we want to send you the videoclips, but also I think that partner 9 should look at them
Mary: hmmm ***(Sub-state 1.1)***
Hazel: and all the user groups
Annie: yes ***(Sub-state 1.1)***
Hazel: for there comments as well. There should be [pause] particularly given the time there should be time to contribute to the discussions
Annie: yes ***(Sub-state 1.1)***
Hazel: and what the best solution is
[Can hear whispering
Annie: And even give, some problems and some sample
Hazel: yes ***(Sub-state 1.1)***
[Jack talks to Annie]
Ronnie: I would like to [pause] to say something very quickly which has already been [pause] sai to our Spanish colleagues. We, we, [pause] our commission [pause] Adam, has already started working on the portal for the project, because we were very much interested in the [pause] using this project also for [pause] for our purposes, and we are ready to put at the disposal this part of the work, which has been done until now
[Can hear whispering – think it is the translator for Michael]
Ronnie: um in order to accelerate the possibility to do exactly what Hazel has [pause] to put some practical examples
[Can hear whispering – think it is the translator for Michael]
Ronnie: and then [pause] if you want to use the what has been done up until now, [pause] we [pause] we of course are happy to put it at your disposal.
Annie: That would be very useful, to see it ***(Sub-state 1.1)***
[Some own discussions taking place]
Paul: So, how are we going to progress now?
[Some own discussions taking place]
Adam: I have a draft
Ronnie: yes ***(Sub-state 1.1)***
Adam: and to put it on the portal
[Hazel is still whispering to Mary]
[Some others are engaged in their own discussions as well]
Adam: We can explain what we intend to do.
[Hazel and Mary whispering]
Ronnie: So it is, it is a prepatory work,
Adam: yes ***(Sub-state 1.1)***
Ronnie: you have done till now, I think that is ok. Whatever, it is, it is at the disposal of our colleagues
James: So, [pause] trying to identify the short term action plan [pause] um, if I understood correctly we are going to make a [pause] a possible to combine action to try and work in the partner 7portal
[Can hear whispering]
James: using voice possibilities and also we are going to have some real case, of another accessible e-learning pages
Mary: yes [nods her head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
James: This has to be ready for [pause] for the submission to the commission, in July. Is that correct?
[Hazel and Mary say yes and nod their heads] ***(Sub-state 1.1 x 4 –spoken and non verbal evidence)***
James: So as a starting point, or input, is of course the information of the partner 7 by Adam and also
Hazel: yes ***(Sub-state 1.1)***
James: from partner 8, ok. Everyone agreed
Annie: yes ***(Sub-state 1.1)***
Hazel: Yes. We will send you a first set of examples ***(Sub-state 1.1)***
[Can hear whispering – think it is the translator for Michael]
Hazel: this is Friday, next week
Annie: yes ***(Sub-state 1.1)***

Hazel: We are now just discussing [gives a small laugh] the technicality
Mary: yes ***(Sub-state 1.1)***
Hazel: because these are on VHS tapes
Annie: aha, ok ***(Sub-state 1.1)***
Hazel: but, now, from now on we will do it on digital tapes
Annie: yes ***(Sub-state 1.1)***
Hazel: which will be easier
Mary: yes ***(Sub-state 1.1)***
Hazel: But somehow we may have to send you VHS tape to start with
Mary: ok ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Hazel: whatever, we will make a very important that you get some material
Annie: yes, something ***(Sub-state 1.1)***
Hazel: something ***(Sub-state 1.1)***
Annie: right, yes to be working on ***(Sub-state 1.1)***
Hazel: and Mary maybe today
Mary: yes
Hazel: can show you a form, in Mindreaders
Mary: on the web browser
Annie: yes ***(Sub-state 1.1)***
Hazel: and to see, and at least to describe the problems that the user had
Mary: yes ***(Sub-state 1.1)***
Hazel: and that will be good to start
Annie: yes ***(Sub-state 1.1)***
Hazel: and then I think it would be interesting for examples
[Some own discussions taking place and someone says shh]
Hazel: and we be told the user organisations, perhaps Paul would like to go and try this form,
Paul: yeah ***(Sub-state 1.1)***
Mary: mhmm ***(state 1.1)***
Hazel: as well, and what do you think, because you might come up with some interesting solutions or
[Can hear Ronnie whispering]
Hazel: or whatever, so we have different users trying the same problem bits
Paul: Yup ***(Sub-state 1.1)***
Kenneth: uh-huh ***(Sub-state 1.1)***
Annie: uh-huh ***(Sub-state 1.1)***
Mary: yeah ***(Sub-state 1.1)***
[Mary whispers to Hazel]
Paul: So, if we can given that we the URL or whatever, information [pause] I need that certainly
Hazel: yes we will do that ***(Sub-state 1.1)***
Mary: yes ***(Sub-state 1.1)***
Hazel: we will do that ***(Sub-state 1.1)***
[Mary whispers to Hazel]
[Some own discussions taking place]
[Paul clicks his fingers]
Paul: So, can I come back to my previous question?
[Mary still whispering to Hazel]
James: yes ***(Sub-state 1.1)***
Paul: Um, what sort of timeframe are we thinking of
[Mary still whispering to Hazel]
Paul: I know the timeframe for the commission is due in July
James: yes ***(Sub-state 1.1)***
Paul: But I think we should certainly [pause] have a look and add the presentation prior to that
[Can hear some whispering]
Paul: and [pause] to have the time to make suggestions for [pause] for changes, improvements, whatever
[Can hear some whispering]
Paul: so
Hazel: yes ***(Sub-state 1.1)***
Paul: So, what is, so what is the timeframe?
[Mary whispers something]
James: it is going to be to create a special page, with the contribution of Paul, Mary, and Adam from partner 7. And from the point of view Annie of partner 2, perhaps you with Fabian take the first action. And at this end the first action is to send all relevant information for next week. After that the feel is [pause] translation or [pause] translation of the webpage can be ready for [pause] in how many weeks?
[Paul clicks his fingers]
[Annie whispers to Christopher]
Desmond: say that again
James: it would be considerable to have the first version of the webpage in 3 weeks
Mary: umm
[Some nodding of heads to indicate agreement to the proposed timeframe of 3 weeks] ***(Sub-state 1.1)***
James: after the commission? In that sense, before
[Mary repeats to Hazel the timeframe for the page to be ready]
James: [pauses] this trial of this integrated webpage
[Mary whispers to Hazel]
James: would be accessible for [pause] sorry, will be available for the rest of the partners to analyse
[Can hear some whispering]
James: Something like that
[Someone says Yup] ***(Sub-state 1.1)***
James: So the objective of this
Translator for Michael: When? When, sorry
James: Mid [pause]
Translator: may?
James: Mid April ***(Sub-state 2.1)***
Mary: April [sounds surprised]
[Hazel laughs]
Hazel: one page
Mary: yes, just one page ***(Sub-state 1.1)***
[Hazel laughs again]
Mary: yes ***(Sub-state 1.1)***
Hazel: you would have to
Translator: one week just to release
Hazel: yes ***(Sub-state 1.1)***

Mary: yes ***(Sub-state 1.1)***
James: That is right? If there is not any other questions, or for the plan we can go to partners 1 and 2, if this is possible. I know it is [pause] there are any additional comments in these item of the agenda, we can go through the administrative issues. So, are there any additional comments? ***(Sub-state 1.1)***
[Jack, Christopher and Annie are whispering]
James: Ok, so Jack.

Administrative issues

Jack: In the agenda their was an explanation of work package 3, since things have changed and maybe [pause] maybe we will skip that [gives a small laugh] but just
[Mary whispers to Hazel]
Jack: I will show a few administrative issues
[Mary whispering to Hazel]
Jack: So, this is just to remind a few things that have been done and should be done from now
[Hazel whispers to Mary]

Amendment

Jack: So, the amendment was fine, and it was sent to the European Commission [pause] and now we are waiting for the signature of the commission
[Can hear some whispering]
Jack: I think, I do not know how long it will take, maybe a week, maybe a couple of weeks
[Hazel gives a small laugh]
Jack: It depends on the meetings on each side
[Elsie looks shocked]
Jack: Last time the contract was very fast
Hazel: yeah ***(Sub-state 1.1)***
Jack: I do not know if it was [pause] by chance because there was a meeting
[Someone laughs]
Jack: a few days after that, and [pause] there, it has been a too long process and the signature of the amendment from our side, something I remember by hand the amendment by hand
[Some individual discussions taking place]
Jack: and finally it was sent to the commission last week. I will ask everyone [pause] when I say everyone, I include everyone
[Hazel laughs and so do some others]
Jack: ask them to have that in mind
[Whispering]
Jack: To try and do things more, efficient for next [pause] things like that, just require a signature or
[Whispering]
Jack: For sending papers and this kind of things. [Pause]
[Christopher whispering to Annie]
Jack: From my side I will try to [pause] to improve communications maybe with [pause] maybe send more communications, in more [pause and then asks something in Spanish]
Lucy: Interactive
Jack: um more interactive ***(Sub-state 1.1)***
[Paul laughs]
Jack: I was going to say use voice xml
[Laughter – Fabian, Paul and some others]
[Mary whispering to Hazel]
Jack: More over you, maybe sending more and saying you have [pause] [changed voice] not so kind, yes, please, please, please
[Someone in the background laughs]
Jack: Maybe I have to change the way. Ok, now something has happened in the last
[Hazel whispering to Mary]
Jack: last, [pause] well, this [pause] the next action is finally
[Whispering between Annie and Christopher]
Jack: partner 8, I remind you that in one of my e-mails, that one of the most important things for the amendment was that
[Whispering – Fabian joins in the conversation between Annie and Christopher]
Jack: was that the partner 8, needed the amendment for the transfer of the monies
Mary: uh-huh ***(Sub-state 1.1)***
Jack: To solve these [pause] this very something that partner 8, will have the money in month 7
Hazel: Well, that
Jack: um
Hazel: As long as they have the piece of paper to say that the money is coming that is all right
Jack: ok ***(Sub-state 1.1)***
[James has a smile on his face]
Hazel: it is the paper believe it or not [gives a small laugh]
Jack: So, in the near future
[Can hear some whispering]
Jack: a new amendment will come and I will have to ask
[Hazel laughs]
Ronnie: sorry
Jack: yes ***(Sub-state 1.1)***
Ronnie: I maybe [pause] I apologise, I, I, I apologise, I am a little bit confused. Is in this [pause] amendment, is it included that partner 7 will extend without changing the amount of money
[Can hear whispering – think it is the translator for Michael]
Ronnie: we extend the month of, of participation for the project
Jack: No, no, the last amendment was just that the work which was not expected to be done by partner 8, and by the University of H ***(Sub-state 2.1)***
[Paul laughs]
[Lucy and Elsie nod their head] ***(Sub-state 1.2 x 2 people provide evidences)***
Jack: Was changed to [pause] to partner 8, and that, but [pause] at the start of the project, instead 1st of September was October
Ronnie: So, I would like
Jack: Because this started a long time ago
Ronnie: This is correct, but I would like to remind you that
[End of tape 5]
[New tape 6 played]
[Paul clicks his fingers]
Lucy: for the whole project and not just the last two months before
Jack: yes, this is very, um it is in the amendment, it is just that you started before and your effort, I mean the
Lucy: I have to find the contacts
Ronnie: The problem is that if you spend some money, outside the official money it could create some problem
[Can hear some whispering]

Ronnie: So, I think it is just to [pause] formalise [pause] you can ask the
Jack: yes
Ronnie: the project manager if you wish, but please [pause] it is, it is necessary to include it in the next [pause]
Jack: yes ***(Sub-state 1.1)***
Ronnie: In order for us to [pause]
Jack: ok, ok, yes
Ronnie: be

Meeting minutes

Paul: Also, it would be certainly nice for the rest of the partners, to be reminded of things like that in um [pause] through minutes. Maybe, it is, for some reason, I did not receive the London, the minutes of the London meeting.
Jack: it was sent and included on the ftp site ***(Sub-state 2.1)***
Paul: was it
Annie: yes ***(Sub-state 1.1)***
Paul: was it on the ftp server?
Jack: yes ***(Sub-state 1.1)***
Paul: Ok, sorry. My fault ***(Sub-state 1.1)***
[Hazel gives a small laugh]
Jack: Maybe you did not receive it, because you were not on the mailing list
Paul: Maybe, I will go and check, but thank you ***(Sub-state 3.1)***

Change in partner 1 company structure

Jack: for the commission that [pause] as I already told you in London there is a change in the
[Kevin whispers something to Desmond]
Jack: in the structure, that was just three months ago, going on a restructure of partners 1 and 2
[Can hear whispering – think it is the translator for Michael]
Jack: and finally that, that already happened, and so, this is how it was partners 1 and 2[pause]
Jack: So, well, there are just [pause] we do not have much time, partners 1 and 2 was asked for a name holding with six companies and now it is names with four companies. So, this square that was included in the management
[Fabian, Annie and Christopher and whispering]
Jack: um, information technology and net services company, now, is one company and the problem is that they have changed the name, so it is the same department, but just a new structure but the name is different [Kevin whispers something to Desmond]
Jack: So, the contract now it says partner 1, plus, including here are now the new name So, now, we will inform the project officer and I expect this will create a new [pause] amendment, it is just administrative
[Can hear some whispering]

FTP site

Jack: Ok, just to remind you, [pause] the ftp site where it is, and I think we have, you all have this information
Desmond: Has it changed?
Elsie: No ***(Sub-state 2.1)***
Jack: No, No, it's the same, its just to remind something's changed, I hope that everyone is using the ftp site and everyone knows how to do it ***(Sub-state 1.2)***
Elsie: yes ***(Sub-state 1.1)***
Jack: I remind you that [pause] there was a change in the procedure
Elsie: yes ***(Sub-state 1.1)***
Jack: There was something that did not work and if you go to the address
[Whispering]
Jack: you are not asked for username [pause] but you have to go the file [pause] button and then select the start sessions, ask [pause] option and then you would [pause] be asked for the username and password, [pause]. But in the last month, months you have used the FTP without a problem and things are fine, but this arose somewhere I think
[Can hear whispering – think it is the translator for Michael]
Jack: We sent you [pause] a list of documents that are on the ftp site. We have from the last time a new structure where the new documents are. [Pause] and it is divided by work packages. So, this [pause] should be respected in the future. This structure, we think the best way to [pause] keep this ftp site
[Ronnie whispering to Annie]
Jack: site, um [pauses] useful is to [pause] is the new procedure could be that you send me the file you want to be included in the ftp site, so we have [pause] so we know that a new file is going to be included. We can [pause] then include the new file in the list of files, and we will end an email to everyone. It is a new file and you can check it in this place
Ronnie: yes. A very good system because, it is ***(Sub-state 1.1)***
Jack: because if everyone is included file space, will not now
Desmond: Um, last year [pause] at the beginning of this year I sent you my file
[Whispering]
Desmond: To put on the ftp server and you didn't
Jack: ah yes ***(Sub-state 1.1)***
Desmond: So, I did it by myself [gives a small laugh]
Jack: Yes, no, [pause] I apologise for that. Fabian is now [pause] taking care of that***(Sub-state 1.1)***
[Paul is clicking his fingers]
Jack: and now you can send the e-mail with copy to Fabian, that will be great, if you cannot do that, I will submit the email, so that is optional. It is a recommendation
[Christopher, Annie and Fabian whisper]
Jack: So, this is just an example of how the list of documents is, is structured.
[Christopher, Annie and Fabian are whispering]
Jack: It includes a number of, every document will have a number, the number is just the order we received and included in the list. It would have [pause] the title, so the name of the file, and, no, no, the name, no, no, the title is just explaining what the, what is in the file, and then the name of the file
[Lucy and Hazel whisper]
Jack: and the where can you find such a document, in what folder you can find the document. And, the date it was included in the list and what is the reading of the document, what organisation has sent it [pause] SO, now I think we have 54 documents, um [pause] 50 something documents
[Jack looks at Fabian for confirmation]
Jack: and were not included a lot of the documents which were sent in the last [pause] 3 days
Mary: uh-huh ***(Sub-state 1.1)***
Jack: easily
Mary: and the report, which I distributed, I did not put it on the web server
Jack: and of course, the list of documents is just in a root
[Hazel whispers to Kenneth]
Jack: folder of the ftp site. So, it is the first thing you find
[Some own discussions are taking place]

Jack: I would ask you to check that these [pauses] you also have, you also have the mailing list. It is also in the root
[Hazel still whispering to Kenneth]
Jack: SO, whenever, you need the address for someone it will be there. Please check it again. This, I think is complete, what you have been sending me the names and I have three more pages
[Hazel laughs]
Hazel: its ok, its ok ***(Sub-state 1.1)***
Jack: I have [pause] I have included here Adam, he is new from the last meeting
[Some own discussions are taking place]
Jack: partner 3 is in the mailing list,

E-mail address for mailing list

Jack: so I guess to include Paul Brass
Mary: yeah. [Pause] Can I ask a question? [Mary puts up her hand] ***(Sub-state 1.1)***
Jack: ah, yes ***(Sub-state 1.1)***
Mary: Um, when you sent your e-mails Jack, a couple of days ago, and last week as well, about the meeting, you did not send them to project@xxxx.com
[Own discussion between Paul, Desmond and Kevin]
Mary: you sent it to a longer e-mail address, is there a difference in the people who are included
Jack: No, no, no
[Own discussion between Paul, Desmond and Kevin – they laugh]
Jack: You just say that
Mary: the server name, yes the server name
Jack: I do not know, I saw an e-mail sent, a reply from you or somebody, no [pause] or someone who is working with you ***(Sub-state 3.1)***
Mary: yes ***(Sub-state 1.1)***
Jack: and I noticed that. And I think the server
Hazel: right ***(Sub-state 1.1)***
Jack: put the different address
Mary: because
Jack: there is only one
Mary: I had a problem replying to that e-mail
Jack: yeah ***(Sub-state 1.1)***
Mary: and it would not recognise the spelling of the server
Jack: and I
Mary: and I just used the old one
Jack: I
Mary: and I was interested to find out, ok, ok, ok,
[Annie and Christopher are looking at a document]
Jack: So, this is the next [pause] I included KC
Hazel: yes, good, thank you ***(Sub-state 1.1)***
[Can hear some whispering]
Jack: And from partners 1 and 2, [pause] two new guys, Conwayne, who is working on the technical side and [pause] and then you have mail from Sajal
Hazel: hmmm ***(Sub-state 1.1)***
Mary: hmmm ***(Sub-state 1.1)***
Jack: on the list
Lucy: And Adam is working in partner 7 not under 5
Jack: It was [pause] included in the list, ok, I am sorry. From our side we have three new people working on it. Johnathan has left
[Someone laughs]
Jack: That is enough, it will be included for until he said until we stop sending him e-mails, so [pause] this arose yesterday, remember the
[Some own discussions taking place]

Changes in consumables

Jack: Remember the morning [pause] the morning for this [pause] for the e-learning courses, and partner 8 is using the consumables
Mary: yes ***(Sub-state 1.1)***
Hazel: yes, yes ***(Sub-state 1.1)***
Jack: and we noticed that partners 7, 5,and the German organisation, 6,
[Some own discussions taking place]
Jack: did not have any money in the consumables, so [pause] that is our proposal, the change
[Hazel whispers to Kenneth]
Jack: To change 20% from travel to consumables. I am talking to Lucy about these numbers
[Lucy nods her head] ***(Sub-state 1.1)***
Jack: I am sure that they are right, I will ask the German organisation [pause] if they also want to change 20% of money from travel to consumables
Desmond: uh-huh ***(Sub-state 1.1)***
Jack: and this will be the result. 2000 Euro in travel, and 1.5 thousand in consumables. If that is right, I will write to Mr Junique about this.
[Some own discussions taking place]
[Pause]

Dissemination

Jack: well, this, I do not know, if it is work on co-ordination or work package 6, some dissemination that has been done, using co-ordination group or whatever, this [pause] this was already in the kick off, we sent a lot of press [pause] releases and there was a lot of [pause] echo in the media. Now since last February, finally we were in the European Conference of new Technologies and Disabilities and Mr Cattani was [pause] giving a speech there and we had a stand [look s at others for confirmation]
Lucy: stand ***(Sub-state 1.1)***
Jack: stand there showing, talking about the project. This was organised by the Spanish presidency of the European Union. This is in the near future in May we have been invited to talk about the project, in our European seminar on Technologies and disabilities [pause] we are going to have a paper in the IBC, in September ***(Sub-state 1.1)***
Hazel: Sorry, what is the
Jack: and this is not complete
Hazel: what is the IBC stand for?
Jack: Ah, Telecommunications [pause] Congress in Amsterdam. IT is in the year [pause] This is know it is Thomas, [pause] will assist in Austria, intentional conference on helping people with special needs
Hazel: was that
Jack: I think that Charles is also going or someone from partner 9
Charles: uh-huh ***(Sub-state 1.1)***
Hazel: Was the paper about the project submitted? It is usual for projects that if you are submitting a paper to a conference, you show it to the whole consortium before sending it to them. So we did not see that
Thomas: I will,
Hazel: could we make that a
Paul: yes, please
Hazel: a procedure
Paul: Yes, a standard procedure ***(Sub-state 1.1)***
Ronnie: on the ftp site, yes
Kenneth: yes ***(Sub-state 1.1)***
Hazel: Good I mean there is no, there is absolutely no problem. IT is just so that people know what is going on
Mary: mhmm ***(Sub-state 1.1)***
Hazel: because I am on the organising committee for that conference, so it is a little bit embarrassing [gives a small laugh] that I do not know a project that I am in
[Whispering – think it is the translator for Michael]
Jack: I mean
Hazel: has submitted a paper
[Mary laughs]
Jack: we are, we have to be more co-ordinated
Hazel: yes ***(Sub-state 1.1)***
Mary: yes ***(Sub-state 1.1)***
Jack: because
[Both Mary and Hazel laugh]
Jack: maybe because we are trying to go to the same conference
Hazel: ok ***(Sub-state 1.1)***
Ronnie: I would
Jack: I am sure that more of it, people is preparing these things
Lucy: to send them
Jack: SO, if I go back to the issue for next Monday and Tuesday, people send to Elsie all the contributions, and presentations
[Some own discussions taking place]
Jack: Here is a picture of what happened in September in the European Conference for Disability,
[Fabian is whispering – laughs]
Jack: this is the Spanish ministry visiting [pause] seeing our stand
Mary: oh great, very good ***(Sub-state 1.1)***
Jack: Oh, yes [pause] and this is the president of Oficom, he was there ***(Sub-state 1.1)***
[Fabian whispers to Mary]
Jack: This is just to remind you that all deliverables for the [pause] for before July. It is very important
[Some own discussions taking place]
Jack: please, remind of the actual plan for the dissemination and use plan, this is very, very important, to have that in mind. And then the next one will be the plug in compatibility, this is the deliverable D.1 at the end of June
[Kevin whispers to Paul]
Jack: and then it is a batch of deliverables for the July, for the end of July. Most of them are preliminary
Hazel: umm ***(Sub-state 1.1)***
Jack: So, this is the actual date for that deliverable. So, we are talking that some of the deliverables are just two months before the expected date but others are [pause] are almost a year before. It is important to have that in mind
Mary: uh-huh ***(Sub-state 1.1)***
Jack: on how [pause] close to the actual deliverables it should be. [Pause] So, what we [pause] having this in mind, [pause] we think that it is for the next meetings, on work package 2, I put this point, we are very close and we will have lots of [pause] meetings, but we have all this new [pause]
[Fabian whispers something to Annie and Christopher]
Jack: things in mind, but for sure, at the end of may, since we have a deliverable for the end of June, we will have a big meeting with results [pause]

Discussion on choosing a date for the next consortium meeting

Lucy: For partner 5 is it possible to have our meeting on the 14th?
Jack: So, this is our suggestion - about 1 month before the end of July to have a meeting. So, partner 5, [pause] for partner 7 it is not possible
Lucy: For 14th it is not ***(Sub-state 1.1)***
Jack: How about the others?
Paul: You talking of June now?
Jack: June, yes, meet
[Someone in the background says to meet the day before]
James: 20 and 21?
Jack: 20 and 21 and the week after
Hazel: uh-huh ***(Sub-state 1.1)***
Jack: and the week after that
[Pause]
Paul: What about the week before?
Jack: 6th and 7th
Hazel: 6th and 7th no ***(Sub-state 2.1)***
Lucy: No, no we have to go to, partner 7 ***(Sub-state 2.1)***
[Small discussion between Lucy, Morris and Ronnie to do with the dates]
James: So, there is some problems with this
Hazel: 20th and 21st

[Some own discussions taking place]
Jack: 20th and 21st
James: Is that ok for you?
Ronnie: Where should the meeting take place?
Jack: I would say again Madrid, [pause] lots of technical results should be, so we have all the portal and something [pause]
[Some own discussions taking place]
Ronnie: there are many, many events in Madrid in June, so, I would, if we decide to have it in Madrid, it is necessary to book already, the hotel rooms
[Someone in the background says uh-huh and yes] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Ronnie: and
Annie: yes ***(Sub-state 1.1)***
Lucy: and it cannot be on the 18th and 19th
Jack: 19th and 20th
James: Wednesday and Tuesday ***(Sub-state 1.1)***
Jack: For us, it is fine [gives a small laugh]
Hazel: it's ok ***(Sub-state 1.1)***
Lucy: Does anyone have a problem
Jack: I do not know the problem with travel, including Saturdays and that [pause]
[Some own discussions taking place]
Ronnie: It is a problem of, it is a problem of ***(Sub-state 1.1)***
Elsie: of travel, it is
Ronnie: no, if you have a stick
Elsie: no, ***(Sub-state 1.1)***
Ronnie: if you have a Saturday included it is cheaper
Hazel: much, much cheaper ***(Sub-state 1.1)***
[Hazel laughs when she said it is much cheaper]
Lucy: no, no you have to have a Sunday, it is maybe cheaper ***(Sub-state 2.2)***
Ronnie: no ***(Sub-state 2.1)***
Elsie: no ***(Sub-state 2.1)***
Hazel: Saturday night
Paul: Saturday night ***(Sub-state 1.1)***
Lucy: yes, you have to miss ***(Sub-state 1.1)***
Mary: hmm
[Some individual discussions taking place re the choice of dates for the next meeting]
James: So one possibility is 19th and 20,
Jack: Wednesday or Thursday
James: is that ok with every one of you? Or there is the 6th and 7th
Ronnie: Unfortunately on the 6th and 7th we have [pause] we have the partner 7 conference and we cannot go ***(Sub-state 2.1)***
James: 19th and 20th
Jack: it looks like 20 and 21
Ronnie: what is this weekend [pause] 22 and 23. What is the weekend?
[Someone replies]
Ronnie: So, if we can take 21 and 22 [pause] we can then leave on Sunday
Hazel: no ***(Sub-state 2.1)***
Kenneth: no, no ***(Sub-state 2.1)***
Ronnie: I think that is ok ***(Sub-state 3.1)***
Elsie: no ***(Sub-state 2.3)***
Hazel: no [gives a small laugh] ***(Sub-state 2.3)***
[Mary laughs as well]
Paul: 20th and 21?
Hazel: 20th and 21 ***(Sub-state 1.1)***
Kenneth: Yep ***(Sub-state 1.1)***
[Some own discussions taking place]
Desmond: What is the answer?
James: 20 and 21, is that ok for everybody
Ronnie: It's not ok for Lucy unfortunately ***(Sub-state 2.1)***
James: no ***(Sub-state 1.2)***
Lucy: no, 19th and 20th
Kenneth: uh-huh 19th and 20th ***(Sub-state 1.1)***
[Some own discussions taking place]
Ronnie: Then we will have to stay in
[Some own discussions taking place
Paul: So, which dates do we finally agree on
[Own discussions taking place regarding the suitability of the date for the next consortium meeting]
Jack: I do not think there is an agreement ***(Sub-state 3.1)***
[Someone in the background laughs]
Hazel: 19th and 20th
Kenneth: 19th and 20th ***(Sub-state 1.1)***
Jack: 19th and 20, which we can ***(Sub-state 1.1)***
Lucy: 19 and 20 ***(Sub-state 1.1)***
Paul: Wednesday
Lucy: Wednesday ***(Sub-state 1.1)***
[Hazel laughs]
Paul: Wednesday's are always difficult for me at least, but if I am the only one do not worry. Thursday and Friday would be better, [pause] but if I am the only one [pause] ***(Sub-state 2.1)***
Ronnie: the idea of having
Mary: how about 17th [Mary gives a small laugh]
[Some own discussions taking place again]
Desmond: Thursday and Friday, Thursday and Friday would be better for us
Jack: sorry
Desmond: Thursday and Friday would be better for us
Jack: ah, yes ***(Sub-state 1.1)***
[Some discussions taking place]
Mary: how about Monday and Tuesday [Gives a small laugh as well]
[Hazel: Monday and Tuesday [laughs as well]
James: Ok. ***(Sub-state 1.1)***
Hazel: and the meeting is on Saturday [gives a small laugh]
Mary: ooh good ***(Sub-state 1.1)***
Ronnie: It must be clear that we will have some problems with, with the tickets. It is inevitable
Elsie: yes, it will be expensive ***(Sub-state 1.1)***
Ronnie: it is more expensive anyway

[Can hear some own discussions]
James: Ok, so 20th and 21
Hazel: yes ***(Sub-state 1.1)***
Mary: Yes, but Elsie said that it is a problem ***(Sub-state 2.2)***
[Hazel laughs]
[Some own discussions taking place]
Desmond: But then partner 5 will not be able to come
James:
Desmond: 20 and 21, partner 5 will not be able to come
James: ok, so ***(Sub-state 1.1)***
Ronnie: It's just Lucy, not the others,
Lucy: no, no ***(Sub-state 2.1)***
Ronnie: ah nobody ***(Sub-state 1.2)***
James: So it is not ok 20 and 21. We have to look at other dates [pause] 14th and 15th was not available
[Some own discussions taking place]
Ronnie: and the weekend after would it be too late?
James: yes, yes, it is just one month before the final submission, and if there is some misunderstanding ***(Sub-state 1.1)***
Mary: And I think that is dangerous [Gives a small laugh]
Jack: I think, I think it would be difficult for the technical partners to react
Mary: ok ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Jack: in one month
Ronnie: yes ***(Sub-state 1.1)***
Lucy: and if we take [pause] the beginning of the week and not the end, 17th and 18th?
Desmond: 17th and 18th?
Hazel: No, I cannot do the 17th and 18th ***(Sub-state 2.1)***
Ronnie: on 18th I have a meeting with my workshop, so no ***(Sub-state 2.1)***
James: 10 and 11th?
[Laughter from some of the partners]
Mary: you decide [gives a small laugh]
James: 10th and 11th?
Michael: yes ***(Sub-state 1.1)***
[Someone else said yes in the background as well] ***(Sub-state 1.1)***
Hazel: no, ***(Sub-state 2.2)***
Ronnie: ok ***(Sub-state 1.2)***
Mary: no, no [laughs] ***(Sub-state 2.2)***
[Some other partners laugh as well]
Hazel: [laughs] I have the 20th? [Pause] 3rd and 4th?
Lucy: no, no ***(Sub-state 2.1)***
Elsie: no ***(Sub-state 2.1)***
Mary: No [laughs] ***(Sub-state 2.1)***
Desmond: yes ***(Sub-state 1.2)***
[Hazel laughs as well]
Mary: What happened 6th and 7th, did anyone say they cannot do that?
[Some own discussions taking place]
Hazel: or the 6th and 7th?
[Some own discussion takes place]
Desmond: 6th and 7th no ***(Sub-state 2.1)***
Mary: ok, it is not good [laughs] ***(Sub-state 1.2)***
Hazel: 3 and 4
Paul: 3 and 4 ***(Sub-state 1.1)***
Hazel: what about 2005?
[Everyone laughs]
Hazel: Is anyone free?
[Laughter again]
Jack: So, the last 3 and 4?
Hazel: 3 and 4 ***(Sub-state 1.1)***
Mary: 3 and 4 ***(Sub-state 1.1)***
Jack: 3 and 4?
[Looks at everyone saying 3 and 4 – Mary and Hazel laugh. So do others]
Paul: solved
Hazel: solved ***(Sub-state 1.1)***
[Laughter from partners again]
[Some own discussions taking place]
Paul: Jack if we say the 3rd and 4th of June, [pause] can we plan it so that we really start on the Monday morning and not just arrive on the Monday
Hazel: yes ***(Sub-state 1.1)***
Paul: would that be possible?
Jack: to start
Hazel: yes ***(Sub-state 1.1)***
Paul: To start from the Monday morning and
Hazel: yes ***(Sub-state 1.1)***
Paul: not to arrive on the Monday and we only have Monday afternoon
Hazel: yeah ***(Sub-state 1.1)***
Paul: and to really say
Hazel: yes ***(Sub-state 1.1)***
Paul: to arrive on the Sunday and say work on Monday morning?
Hazel: yes, I think that is important ***(Sub-state 1.1)***
Kenneth: yes ***(Sub-state 1.1)***
James: I have got
[Some laughter]
Elsie: 9 o'clock will be ok [gives a small laugh]
[Some own discussions take place]

Meeting location
Paul: and the next question is why should it be Madrid?
[Laughter from some of the partners]
Elsie: because Jack said,
Jack: Because as I said [pause] before that the, for the preparing for the final [pause] deliverables and most of them will be the e-learning portal, evaluations, and so for the technical teams it is important to be there, and to complete all the [pause] and to be able to react and to have all of the [pause] demo's and software.

James: Perhaps we can arrange the follow up meeting, after June in another venue? For example in Germany,
Desmond: It just means that it is very expensive for us
[Some own discussions take place]
James: Verona?
[Some own discussions taking place]
[pause]
[After coffee break]

Project brochure

Jack: Ok, it is meant to be discussions and group solution, but we can start the discussion with this [pause] presentation that was [pause] that was distributed yesterday and so [pause] I think Hazel,
Charles: detected yesterday that there are a few [pause] mistakes and I think you also have some comments about this.
Hazel: um, would it not be possible to have contact persons for each of the partners, as well as the
Jack: in this paper?
Hazel: in this paper, yes ***(Sub-state 1.1)***
[Some own discussions taking place]
Paul: Which paper are you referring to Hazel?
Hazel: this is a 2 page [pause] project brochure, which is being circulated.
[Some own discussions taking place]
Paul: Is that available electronically someplace?
Jack: it is not in the ftp but ***(Sub-state 2.1)***
Fabian: no, it is not, but we will upload it, [pause] very soon ***(Sub-state 1.2)***
Desmond: is it pdf file?
James: Yes, it s a pdf file ***(Sub-state 1.1)***
Fabian: Yes ***(Sub-state 1.1)***
Jack: So, it is better to [pause] in word format for you?
Desmond: yes, please ***(Sub-state 1.1)***
Jack: word format?
Desmond: yes ***(Sub-state 1.1)***
Lucy: also for me ***(Sub-state 1.1)***
[Someone says html]
Jack: ok, maybe I should explain this was created for that European Conference on new technologies and disabilities, which was organised by the Spanish Presidency for the European Union, and you know it is from January to June. So, that is why in June there will be a lot of things in Madrid. ***(Sub-state 1.1)***
[Can hear whispering – think it is the translator]
Jack: because it is at the end
Hazel: Right ***(Sub-state 1.1)***
Jack: So, partner 1 created this stand, and was included this [pause] for distribution on this stand.
[Can hear whispering – think it is the translator]
Jack: And so it was paid for by whole partners 1 and 2, and Alaiz.
[Can hear whispering – think it is the translator]
Jack: Finally it was [pause] it arrived very late, but it was not distributed [gives a small laugh] So now there is this version
[Can hear whispering – think it is the translator]
[Kevin says something to Paul]
Jack: SO, it was created with a format which was fit for [pause] I do not know for print company, so I do not know if it is possible to change the word format. It was front [pause]
Fabian: page maker
[Some own discussions taking place]
Jack: But maybe they have a way of saving it in Word, we will try
Paul: PDF would work, but Word is preferable, but I mean [pause] before it is just unavailable, let, let us have it in pdf form.
Fabian: ok ***(Sub-state 1.1)***
Jack: Sorry, so your comments
James: What are your comments regarding [pause]
Kenneth: one general comment is that is that it is important that a project which is aimed at accessibility, that we make anything of this nature visually accessible. And at the moment the font is very small and you have used shadowing behind some of the titling which is simply confusing to someone with lower vision. [Pause] UM, [pause] we do need to follow clear print guidelines
[Fabian: uh-huh and nods his head] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: in order to make sure that something of this nature is [pause] we are following the best practice with visually impaired [pause] lower vision. [Pause] So, that is one general comment. You have got some more specific
Hazel: yes. The, the top title is 'A European Project for Accessibility to Internet' which for proper English it needs to the Internet, but that is very very general, I think it would better, for the next version to have something a little bit more specific like ***(Sub-state 1.1)***
[Can hear whispering – think it is the translator]
Hazel: A European Project for the Accessibility to e-learning resources, or e-learning on the internet, or something
[Can hear whispering – think it is the translator]
Hazel: something, to bring in e-learning as well as accessibility
Kenneth: uh-huh ***(Sub-state 1.1)***
[Some own discussions taking place – including Ronnie and Lucy]
[Desmond and Kevin try to look at the brochure. They are both visually impaired]
Hazel: other comments are I had was that there is no project website, address listed here
James: yes ***(Sub-state 1.1)***
Hazel: and you have listed, the total funding from the EU, and the total funding from the project, but I am
Paul: uh-huh ***(Sub-state 1.1)***
Hazel: and an not sure, that is very important information to be telling the world about
Paul: no [laughs] ***(Sub-state 1.1)***
[Hazel laughs as well]
Jack: There is something that the European Commission likes to have everywhere
Hazel: the funding?
Jack: Yes. ***(Sub-state 1.1)***
James: as in
Hazel: ok, ok, if they want it ***(Sub-state 1.1)***
Morris: I thought they want it just for reference
[Some own discussions taking place]
Morris: for the evaluation?
Hazel: that is what I thought. You did not need to give the amount of money ***(Sub-state 1.1)***
Paul: no, no, definitely not ***(Sub-state 1.1)***
James: uh-huh ***(Sub-state 1.1)***
[Some own discussions taking place]
Elsie: Jack, normally, when, as far as my experiences is covered, and i do not know about the other participants. For the European Project, for the European Commission, it ask to put their logo on it as well

Hazel: yes ***(Sub-state 1.1)***
Elsie: when it is European funded
Jack: there logo?
Elsie: There logo ***(Sub-state 1.1)***
Jack: yes ***(Sub-state 1.1)***
Hazel: They have it
Elsie: I cannot see it ***(Sub-state 2.1)***
Hazel: on the side, up there
Elsie: ok, ok, not the [pause], but not the general ***(Sub-state 1.1)***
Translator: concerning our [pause] role that partner 4 should integrate [pause] with Verona section
Jack: Verona section?
Translator: because it is not [pause] not a national
Elsie: partner 7
[Some own discussions taking place]
Translator: I can write it. It is S –C –I-O_M-E
[People in own discussion while the translator gives information to Jack]
[Morris puts his hand up]
Morris: Jack
Jack: ci ***(Sub-state 1.1)***
[Hazel Laughter]
Morris: I, concerning the logo of partner 7, I think the logo has two blue stripes [pause] which apparently is not shown here
Jack: blue stripes?
Morris: I sent you a logo by e-mail, and I do not know if you have been able to
James: What is important is that [pause] to have access to the original logo of each partner
Hazel: hmmm ***(Sub-state 1.1)***
Kenneth: hmmm ***(Sub-state 1.1)***
Lucy: Jack, could we [could not hear]
Jack: of course ***(Sub-state 1.1)***
[Mary laughs]
Kenneth: yes ***(Sub-state 1.1)***
Fabian: sorry go ahead
Kenneth: yeah ***(Sub-state 1.1)***
Jack: and it KU instead of PU
Kenneth: The partner 3 logo, I believe you have used the wrong form for the newsletter. We have it in multiple forms that is very strict requirements
Jack: uh-huh ***(Sub-state 1.1)***
Kenneth: and you actually need permission from our people, before we can [pause] before you can use the logo on the newsletter.
Mary: hmmm [Mystery sound] ***(Sub-state 1.1)***
James: So you want to provide
Kenneth: I can provide, I can it, I can get the permission for you, but it has to be granted, and it has to be copied, no matter where our logo is used ***(Sub-state 1.1)***
[Some own discussions taking place]
Fabian: What is also important is to have [pause] to have the logo in a high-resolution format
[Hazel nods her head] ***(Sub-state 1.1)***
Fabian: Because when it is printed in a very high, in a very big format
Mary: uh-huh ***(sub-state 1.1)***
Fabian: um [pause] it is not well printed, if it is not a high resolution format
[Mary: uh-huh nods her head as well] ***(Sub-state 1.1 x 2 –spoken and non verbal evidence)***
Kenneth: oh right ***(Sub-state 1.1)***
Jack: For the stand we had a big
Fabian: we used a gig one
Jack: and we had just a few [pauses] with good resolution
[Hazel whispering to Kenneth]
Jack: I do not know if every one of you have this high resolution?
[Some own discussions taking place]
Jack: A pictorial format is what they use
Hazel: I could not open this one, but I sent it to you, so I assume it was ok [gives a small laugh] it was something that I have never heard of
Jack: ok ***(Sub-state 1.1)***
[Some own discussions taking place]

Conclusions from the meeting

Jack. Now maybe we can [pause] I can try to review all of the action we have [pause] talking about these two days.
[Mary whispering to Hazel]
Jack: The first is not an action, it is a conclusion that this next three months, again to remind, is that the next three months are very [pause] important for the success of this project. So, we should be aware of that, and to act in that way, towards the more efficient [pause] kick [pause] efficient and so this critical period start with the deliverable 6.4 – the dissemination and use plan. So, we decided to first action was to, was to Elise and to [pause] to send to Elsie the dissemination actions in order to have one document
[Hazel whispering to Kenneth]
Jack: resuming all of these actions and maybe [pause] I want to have this clear, not only to Elsie this information, but to us. The questionnaire that was sent to you
[Can hear whispering – think it is the translator]
Jack: a few weeks ago, so please this is for the deadline for that action is next Tuesday
[Can hear whispering – think it is the translator]
[Some own discussions taking place]
Ronnie: and the dissemination?
Jack: To Elsie the dissemination, but the questionnaire was complete, dissemination, exploitation, to answer all the [pause]
[Some own discussions taking place]
James: Yesterday, was divided into different possibilities over the six points for the deliverables. There were five main tasks
[Can hear whispering – think it is the translator]
James: one was standardisation in which [pause] Hazel is going to take an active role. We have to send some proposal for the meeting, for the meeting in Los Angeles and we have to act quickly
[Can hear whispering – think it is the translator]
Hazel: I have already e-mailed the person, this guy who is going to the meeting to ask
Desmond: ok ***(Sub-state 1.1)***
Hazel: them to introduce the project
James: Regarding the exploitation plan, this activity will be conducted by commercial companies, both partners 1 and 2 regarding clustering indicating the things by FJ, which we must participate in these kinds of meetings, perhaps in may or something when there is the final date. Another very important activity is the [pause] dissemination of the project tool and certificate, is the name. Yesterday it was decided that Elsie is going to take the responsibility of this task. Yeah?
[Elsie nods her head] ***(Sub-state 1.1)***

James: and this task, the last task is the creation of the voice pages, that this has more or less agreed, ok. Regarding the start time of the schedule plan [pause] there [pause] the proposal that we must try and comply with to ensure that this critical deliverable is going to be end at the month mach
[Brief discussion between Paul, Desmond and Kevin]
James: and finally to take it to this end, the first week of April. For, this the item indicated can be [pause] can be sent on the screen. All the communications and contributions from all partners before the 18th of March. After that we are going to provide a draft report with a version for comments, before the 22 of March. So, before that [pause] the technical advantage of Elsie to Madrid we are going to [pause] to work together and these versions for comments is going to be ready for the 22nd of March. So, we will say to all partners, they must meet the final comments over the deliverables before the 28th of March, after that the final iteration will be made before the 4th of April, Tuesday I believe, and will be sent to FJ
[Mary whispering to Hazel]
James: Other conclusions agreed in the meeting, in this plenary meeting [pause] made a review of work package 6, we also made a review of work package 2, which is some [pause] frame of the plug in, we had some very interesting discussions yesterday afternoon regarding work package 1- user requirements.
[Can hear whispering – think it is the translator]
James: Also, we analysed the work currently involved in workpackage 4. So, the conclusion point of view are combining each of the different work packages and [pause] and also considering the conversation of this morning, more or else could be as follows, we must work in the implementation of [pause] partner 7 portal and also [pause] showing some [pause] real cases of e-learning assisting web pages
[Can hear whispering – think it is the translator]
James: that were not accessible at all, and show how can be more accessible using voice XML and Compalabras technology
[Discussion between Annie, Christopher and Charles]
James: For the wizard [pause] we are going to be, a close critical co-ordination, between [pause] French, partner 7, Adam and Thomas and [pause] um Charles from partner 9 and [pause] partners 1 and 2 with Annie and Christopher, with [pause] with us and the participation of Paul. Paul from the German side, and um [pause] in the scheduled plan we agreed for this work, is to receive the information in one week coming from partner 8, and from partner 7, and after that in three weeks we will be available the first version using Voice and Compalabras. This will be expected to be ready for the meeting, and the conclusions the date of this meeting, with some difficulty we have been able to pass. I do not know if there are any additional comments? Or the administrative issues regarding partner 8 to receive the paper this morning. And, also we need to do some modification with partner 7 and answer the potential name, also change of money, and answer the possible change of the name from partners 1 and 2, the review of WP6, and also we made a review of WP2, and we some frame of the plug in, and we have seen some very interesting discussions yesterday afternoon
[Can hear some whispering]
James: Regarding work package 1, user requirements and also [pause] we analysed the work carried out in work package 4. So, the conclusion [pause] from our point of view is combining all the needs of the different work package [pause] and also considering the conversation of this morning and more or less to be as follows, to work in the implementation of the partner 7 portal, [pause] and also showing some real cases of e-learning assisting in webpages that at this moment are not accessible at all, and also show how can be more accessible to use the voice xml and Compalabras technology. [Pause] for the admission it is going to be critical that the close co-ordination between the French relation, partner 7and Adam and Thomas, [pause]
Ronnie: And the extension of [pause] working with
James: yes ***(Sub-state 1.1)***
Ronnie: to say that we do not want to change the amount, it will be very important

AOB

James: ok, any additional comments?
Jack: Are we missing something?
Ronnie: no ***(Sub-state 2.1)***
Jack: any comments for discussion for this conclusion
Lucy: I think we had a very good meeting, difficult perhaps, but very interactive
Jack: It was necessary
[Paul puts up his hand]
Paul: I guess reasons, unknown to me, but organisational reasons, we all stayed in different place.
[Can hear whispering – think it is the translator]
Paul: I have always found that at meetings like this, that it would be nice to have all the participants staying at the same place, so you could use the times in the evening, if you wanted to for some informal contacts. SO, I would suggest for future meetings beginning
[Can hear whispering – think it is the translator]
Paul: maybe starting with the one in Madrid that if you try and make sure that all [pause] stay at the same hotel. We do not have to [pause] sit on each other's lap
[Laughter – Hazel, Mary and some others]
Paul: but it would be nice to just have the opportunity, that if we want that, to exchange some ideas, just some informal contact over dinner or over drinks, or whatever.
Jack: So, one question of this issue. Do you prefer to be close to the venue of the meeting?
Hazel: yes ***(Sub-state 1.1)***
Paul: yes ***(Sub-state 1.1)***
Jack: or
Fabian: or the hotel
Ronnie: which is please sufficiently accessible and is easy to
Mary: hmmm ***(Sub-state 1.1)***
Ronnie: and
Jack: ok, so the next question is how about the hotel for the kick off meeting, it was good enough? ***(Sub-state 1.1)***
Mary: I think most of us
Paul: it was all right ***(Sub-state 1.1)***
Hazel: yes ***(Sub-state 1.1)***
Jack: sorry
Elsie: IT was Alais mos?
Jack: Alais mos [pause ***(Sub-state 1.1)***]
Hazel: yes that was fine ***(Sub-state 1.1)***
Jack: That was fine, so we will try to have this one ***(Sub-state 1.1)***
[Can hear some own discussions]
Hazel: This time will we meet at your offices
Jack: no ***(Sub-state 2.1)***
Hazel: or that place
Jack: that place ***(Sub-state 1.1)***
Mary: oh ok ***(Sub-state 1.1)***
Ronnie: and would it not be interesting to [pause] to visit your office
Jack: yes ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Fabian: yes, if you want ***(Sub-state 1.1)***
Hazel: yes, ***(Sub-state 1.1)***
Ronnie: yes, we would be interested ***(Sub-state 1.1)***
Annie: yes ***(Sub-state 1.1)***
Ronnie: maybe you could show your employees some blind people
[Mary and Paul laugh – also Fabian and some other people as well]
[Someone in the background says very generous]
James: and the other question is what would you like to see?

[Hazel gives a small laugh]
James: in Madrid we have many many buildings, we are going to try and organise a visit in the holy area
Ronnie: I like to go everywhere
[Annie gives a small laugh]
James: ok. So, thank you very much for you reactive participation and constrictive critics, for the project. It has been absolutely necessary to reach this point in the project, to select that way. Thank you ***(Sub-state 1.1)***
Lucy: you are invited for some drinks.

MESSAGE 1
From: Ronnie
To: Project team
Subject: First Announcement, IST 2002 - Copenhagen, November 4-6
Date: Tuesday, March 19, 2002 8:14 AM

For information.
Ronnie

>From: INFSO-IST2002@cec.eu.int
>To: inter@uiciechi.it
>Subject: First Announcement, IST 2002 - Copenhagen, November 4-6
>Date: Thu, 14 Mar 2002 12:59:14 +0100
>X-Mailer: Internet Mail Service (5.5.2653.19)
>
>IST 2002: Partnerships for the Future
>Europe's leading networking event for Information and Communications
>Technologies
>
>4-6 November 2002, Copenhagen
>
>IST 2002 - co-organised by the European Commission and the Danish EU
>Presidency - will broaden its scope to all European Information Society
>research, whether it be funded at European, national or regional level - or
>even entirely within the private sector.
>
>In short, to develop a European Research Area for the Information Society.
>
>The general theme is therefore 'Partnerships'. The aim is to help Europe's
>researchers and industrialists build networks for collaboration, at a time
>when the IST priority within the EU's 6th Framework Programme for research
>and technological development is getting underway.
>
>DON'T JUST ATTEND IST 2002 - HELP SHAPE IT. The European Commission will
>soon publish an informal Call for Ideas for both specific workshops and
>research exhibits. We expect the response to be high in number and quality.
>The result will be an event tailored to the participants' needs.
>
>This is therefore an event not to be missed by anyone who is actively:
>- Engaged in research
>- Funding research anywhere in Europe through national, regional or private
>initiatives
>- Setting strategic research priorities
>- Seeking to commercially exploit the results of research
>
>IST 2002 is your best opportunity to meet Europe's top researchers and
>decision-makers from the information and communications industries and the
>related public sectors. The event will feature a wide range of workshops
>designed to maximise opportunities for discussion and informal networking.
>
>IST 2002 is organised by Information Society Directorate-General of the
>European Commission and the Danish Ministry of Science, Technology and
>Innovation, under the patronage of European Commissioner Erkki Liikanen and
>Minister Helge Sander.
>
>Don't miss out
>4-6 November 2002 - Copenhagen
>
>This announcement is available in a ready-to-print pdf format for further
>dissemination, from
>the Commission's Information Society Newsroom:
>http://europa.eu.int/information_society/newsroom/documents/ist2002_first_an
>nouncement.pdf
><http://europa.eu.int/information_society/newsroom/documents/ist2002_first_a
>nnouncement.pdf>
>
>Further Information:
>http://www.woco.dk <http://www.woco.dk> for information on Copenhagen
>http://www.cordis.lu/ist <http://www.cordis.lu/ist> for information on
>today's IST Research Programme
>
>yours sincerely,
>
>the IST 2002 Team.
>

MESSAGE 2
From: Fabian
To: Project team
Subject: Contributions to D6.4 (URGENT)
Date: Thursday, March 21, 2002 7:31 PM

Dear partners

We have almost all the contributions for the Dissemination and Use Plan which has to be delivered before the end of March to the Project Officer.

We have detected that there is no contribution regarding the publications in scientific or technical magazines. Please, send your proposals as soon as possible.

Thank you and best regards.
Fabian

MESSAGE 3
From: Desmond
To: Project team
Subject: AW: Contributions to D6.4 (URGENT)
Date: Friday, March 22, 2002 11:46 AM

Hi Fabian,
we have some difficulties in delivering proposals for scientific or technical magazines, because we still do not know, if we should set the focus mainly on the E-learning or the VXML/Conpalabras-Technology. In addition we had difficulties in describing the advantages of Conpalabras regarding the multiple functions of modern screenreaders.
Perhaps the other partners (greetings to all of you) had similar problems. We suggest that partner 1 prepares a general proposal, which can be translated in our different languages and then publicated. I hope, you understand our problem and you can confirm with our suggestion.
Best regards
Desmond

MESSAGE 4
From: Jason
To: Project team
Subject: publication plans
Date: Friday, March 22, 2002 12:37 PM

Fabian,

May I draw your attention to the fact that you apparently missed what is written in Partner 9's note (attached to this email but distributed already weeks ago) in which you can find:

****
We (=Partner 9) will also publish an article in Infovisie Magazine, which is the only three-monthly magazine in Europe dealing uniquely with technological aids for (visually impaired) persons. InfoVisie Magazine's Benelux based editorial board consists of Infovisie VZW, Blindenzorg Licht en Liefde, KOC (the Kennis- en Ondersteuningscentrum of the Flemish government), VISIO and Sonneheerdt.

Further possibilities are:
· AAATE newsletter
· the IEEE Transactions on Rehabilitation Technology
· Technology and Disability
(http://www.fernuni-hagen.de/FTB/aaate/aaatenew.htm#journal)

****
Jason

MESSAGE 5
From: Fabian
To: Project team
Subject: Draft version of the Dissemination and Use Plan.
Date: Friday, March 22, 2002 4:18 PM

Dear partners,

As we agreed in the Paris meeting, we are sending you the draft version of the Dissemination and Use Plan.

Regarding the action plan, we will be waiting for your comments until next wednesday (28-03-2002)

Please, note that there are still some parts to be completed. Elsie will send you a more complete document next monday. She is currently in Madrid and has no way to send the document before.
(See attached file: DISSEMINATION AND USE PLAN.doc)

Best regards,
Fabian

MESSAGE 6
From: Charles
To: Project team
Subject: Project glossary
Date: Monday, March 25, 2002 12:14 PM

Dear partners,

During our meeting in Paris, we discovered that we were not sure we all meant the same thing by 'portal' In order to prevent such misunderstandings in the future, it may be interesting to maintain a project glossary. The first version of this glossary is attached to this e-mail. Additions and comments are welcome.

Best regards,
Charles

MESSAGE 7
From: Fabian
To: Project team
Subject: Second version of the Dissemination and Use Plan
Date: Monday, March 25, 2002 7:38 PM

Dear partners.

Here you can find attached the second version of the Dissemination and Use lan.

(See attached file: DISSEMINATION AND USE PLAN v2.doc)

Please, send your comments as soon as possible.

Best regards,
Fabian

MESSAGE 8
From: Adam
To: Project team
Subject: Project portal - FIRST DRAFT,
Date: Thursday, March 28, 2002 10:39 AM

Hello
I've just put the project portal on line. You can find it at : http://www.xxxxxxxxx.org/project/index.php >.
Of course, this is a only a very first draft and your comments and suggestions are most welcome.
Please note that only the following functions are active for the moment :
1) Login : For members
2) To subscribe
3) Our selected sites

Looking forward to hearing from you.

Kind regards
Adam

MESSAGE 9
From: Fabian
To: Project team
Subject: D6.4 third version
Date: Monday, April 01, 2002 6:11 PM

Dear partners,

Here you can find attached the third version of the Dissemination and Use lan. It includes some comments received last week. The point 3 has also een modified.

(See attached file: DISSEMINATION AND USE PLAN v3.doc)

We will send this version to the Project Officer next Wednesday, unless you ave any comment about the document.

Best regards,

Fabian

MESSAGE 10
From: Jason
To: Project team
Subject: More about eLearning
Date: Friday, April 05, 2002 1:50 PM

For your information:

> The European Commission has recently published an Interim Report
> on eLearning,
> covering all community activities linked to the eLearning Initiative:
> "Commission Staff Working Paper - eLearning : Designing
> Tomorrow's Education,
> Interim Report".
>
> Further details:
> http://www.proacte.com/LatestNews/viewnews.asp?ID=26974

Jason

MESSAGE 11
From: Mary
To: Project team
Cc: Sajal
Subject: PROJECT: E-learning Problems
Date: Friday, April 05, 2002 5:03 PM

Dear All,

As promised at our meeting in Paris I am sending you descriptions of eight roblems our participants experienced when using e-learning courses. I described each problem as fully as possible however I will need your help in defining the causes of some of the problems (the opinion of the technical partners would be particularly beneficial) and for specifying the solutions to these problems (suggestions from all of you would be very useful). After that the technical partners will be able to implement some of these solutions using Voice XML.

In order to give you a better idea of each problem I put short videos on the PROJECT server in the directory WP1/ProblemVideos. Apart from the first all video clips take lots of hard disk space and can take quite a while to
download. This is because they are full screen videos. I can provide you with smaller screen videos which take much less hard disk space if you will be interested to have a look at these videos.

To be able to access the two courses on the web you need to go to: http://link.mindleaders.com/dpec/elearn_loginacc.htm

The user ID is: xxxxx
The password is: project

Finally, I will also greatly appreciate if at least some of you rate how severe you think these problems are in terms of visually impaired users being able to access and interact with forms and other course components. You can use the proposed schema attached to this email to rate the severity of the problems. It will be great if you could email me your ratings and I will average them. Please also email me back your comments and suggestions and I will forward them to our technical partners.

Many thanks.
Best regards.
Mary

MESSAGE 12
From: Charles
To: Project team
Subject: Cynthia - browser with voice output
Date: Tuesday, April 16, 2002 1:06 PM

Dear partners,

On 27 March, Jason and I saw a demonstration of Cynthia, a browser for visually impaired persons, created by Daumas Informatique. A report on this demonstration is attached to this mail. It may be interesting to co-operate with Daumas for several reasons: Cynthia is written in Java (the language of choice for the PROJECT authoring tool), the browser converts HTML into VoiceXML, and it can switch between TTS engines.

Regards,
Charles

MESSAGE 13
From. Mary
To: Project team
Cc: Sajal
Subject: PROJECT: Interesting information about authoring tools
Date: Friday, April 19, 2002 5:40 PM

Dear All,

I found some information regarding two existing web authoring facilities which may be of some interest in terms of developing the PROJECT authoring tool.

1. A-Prompt Toolkit: this is a software tool designed to check the accessibility of web pages (based on the WAI Accessibility Guidelines) similar to Bobby, but it also offers a repair function which provides an interface for making improvements to the HTML code. My understanding is that the A-Prompt Toolkit can be used either on its own or integrated into an existing HTML authoring tool. A free version can be downloaded from: http://aprompt.snow.utoronto.ca/

2. Harmonia Authoring Tool: allows users to compose and edit UIML user interfaces including voice interfaces. According to the tool's description the actual tool is also meant to have multiple interfaces including a voice interface. More information can be found at:
http://www.harmonia.com/index.htm
http://www.harmonia.com/products/ide/index.htm

Partners 3, 1 and 2 have let us know that they are or will soon be reviewing the e-learning problems we distributed. May I remain all partners that the more feedback we get from everyone the better our understanding of the existing problems will be and the better the proposed solutions will be.

Many thanks.
Have a nice weekend.
Mary

MESSAGE 14
From: Mary
To: Project team
Cc: Sajal
Subject: PROJECT: Interesting information about authoring tools
Date: Friday, April 19, 2002 8:59 PM

Dear All,

I found some information regarding two existing web authoring facilities which may be of some interest in terms of developing the PROJECT authoring tool.

1. A-Prompt Toolkit: this is a software tool designed to check the accessibility of web pages (based on the WAI Accessibility Guidelines) similar to Bobby, but it also offers a repair function which provides aninterface for making improvements to the HTML code. My understanding is thatnthe A-Prompt Toolkit can be used either on its own or integrated into an existing HTML authoring tool. A free version can be downloaded from: http://aprompt.snow.utoronto.ca/

2. Harmonia Authoring Tool: allows users to compose and edit UIML user interfaces including voice interfaces. According to the tool's description the actual tool is also meant to have multiple interfaces including a voice interface. More information can be found at:
http://www.harmonia.com/index.htm
http://www.harmonia.com/products/ide/index.htm

Partners 1,2 and 3 have let us know that they are or will soon be reviewing the e-learning problems we distributed. May I remain all partners that the more feedback we get from everyone the better our understanding of the existing problems will be and the better the proposed solutions will be.

Many thanks.
Have a nice weekend.
Mary

MESSAGE 15
From: Charles
To: Project team
Subject: PROJECT authoring tool: requirements: request for comments
Date: Wednesday, April 24, 2002 9:45 AM

Dear partners,

The zip-file attached to this e-mail contains part of my personal project web site, and one of the files in this site (AT_Vision_v01.htm) contains a list of requirements for the authoring tool. (The other files are just for your information.) The requirements are categorized and prioritized. The technical partners would like to receive comments (and possibly questions)
from the user group partners about this list.
Please send your comments to Conwayne, Christopher, Annie, Jack, James, Fabian, Partner 4, Eddie and Charles. (If I didn't mention all the right persons for some of the technical partners, please let me know.)

Best regards,
Charles

MESSAGE 16
From: Hazel
To: Project team
Subject: our web site
Date: Wednesday, April 24, 2002 7:07 PM

Dear All,

I've had a look at the web pages that Adam has put up so far and I have the following comments:

colour contrast between the visited and unvisited links is poor and inconsistent between pages. On the home page the difference is white/beige, which is not a strong enough contrast. On the other pages it is purple/reddish purple, which I found almost impossible to distinguish and I also found it almost impossible to read the links onthe pages other than the home page, as the text was so small and the contrast between the purple and the black was so slight. Can I ask why a black background was chosen? I find this very oppressive. I know some partially sighted people find yellow on black readable, but they should adjust their own web browsers, and generally black on white is a highly readable combination.

On the partners page, a table was used for presentation purposes rather than data, which violates both the W3C guidelines for good html and the WAI guidelines for accessible presentation. Not to do with the presentation of the web site, but I notice you have put the University of H as a partner, when we have just transferred this to Partner 8.

I ran the home page through Bobby and it does not meet Bobby approval yet.

Obviously the PROJECT web site needs to be an exemplary site for visually mpaired users and must pass Bobby and meet both WAI and Partner 3 accessibility guidelines. So we need to be particularly careful about this.

I would welcome any comments from Partner 3 about the pages at the moment.

Cheers,
Hazel

MESSAGE 17
From: Adam
To: Project team
Subject: Re : Our web site
Date: 25 April 2002 11:34

Dear All,
I've just read the mail sent by Hazel, and I think it is important to remind the main goal wich has been established during our last meeting :
Each partner have to supply to the spanish web pages, so that they can test and present voiceXML technology examples adapted to blind and partially ighted users.
I keep in mind all your comments which will be useful later. ut I must remind you that my first goal is to provide an example of a
DYNAMIC SITE (i.e a portal) to the spanish, so that they can apply their Con alabras technology.
I have already called them concerning that topic.
Developping DYNAMIC SITES like portals is completly different than writing tatic web pages (that is what I tried to explain during our last meeting).
Concerning contrast problems (link colors...), their will be solved by the mplementation of style sheets (CSS). I also plan to offer users the ossibility to use style sheets adapted to their own needs.
Currently, I am using browsers accessibility features and Windows parameters o develop (black background and white text). Thomas will work on design. ight now, I am mainly working on the braille legibility of the site, and on dynamic site prototype on wich spanish can test the voiceXML technology.

Best regards.
Adam

MESSAGE 18
From: Christopher
To: Project team
Cc: Sajal
Subject: RE: Re : Our web site
Date: Thursday, April 25, 2002 12:37 PM

Dear Adam,

I propose to do the following:

We can start with a static web page of the Partner 7 with some common elements list box, radio button, button, form, etc.) and that fullfil the WAI equirements (also with CSS). This would be the first step, a example of ccessible static web page with synthesis of voice. This page should bemeveloped in English.

After that we can try with a dinamyc web page, we need the source code (thePHP, JSP, ASP, etc.), and integrate voice dinamicaly.

It should be useful to put these sample pages in a web site www.project.org) to get the feedback and the suggestions of all the
partners. We're preparing some pages of WP3 to share information between echnical partners that will be soon in the web.

I also think it should be useful to do a sample page of each e-learning problem that Mary describe in her previous document and its possible

solutions: a better design of the options, voice feedback and confirmation of the answers, etc. We can put these pages in the web site and try to find the best solution to solve these problems.

Comments are welcome.
Best regards,
Charles

MESSAGE 19
From: Jack
To: Project team
Subject: PROJECT review
Date: Thursday, April 25, 2002 1:37 PM

Dear Colleagues,

we have just received a message from Mr J of the European Commission with very important information. You can find his message at the end of this email.

We are expecting more official information for today, but from conversations with Mr. J we can summarize the situation as follows:

- Due to the bureaucratic procedures in the Commission, the review for the project should be by mid of May. This is the review that will decide the extension of the contract for another 15 months, that was originally scheduled for the end of July.

- The Commission assumes that at this time we will have no deliverables prepared. Maybe only some drafts.

- There will be no meeting with experts in Brussels. The experts will do their work with the documentation that we will send them.

- The documentation that we must send is:
  - Report of the present situation of the project
  - A new Annex 1, with any changes we may want for the next 15 months

- This documentation should be sent to the Commission before May 7-8th.

So what they want to know now is a picture of the present situation of the project and what are our plans for the future. The Commission prefers to review now because to do that in July as initially planned could mean to have not any information about the continuity of the project perhaps until Npvember December, and this could jeopardize the extension of the contract.....

We think that we should create for this new situation an action group in order to prepare the documentation. It could be desirable to have a head representative for the user, universities and technological point of view (besides the coordination picture)

We will come back with more information as soon as we have it (hopefully today)

Best regards,
Jack

Mr. J's message:

Dear Jack,

I tried to phone you today without success but we should talk tomorrow. I had a quick word with Jxxxxx just now too.

We have had a meeting with our administrative management and the outcome is that the process for extending the current contrcat after the first year is very heavy and there is no choice but to get an opinion from experts before the middle of May, ie much before the schedule milestone. As it is clear that very few deliverables will be ready by that time (even perhaps in
Draft mmode), we will ask you to provide a short review report explaining the progress achieved so far.

Also you will be required to provide a new technical annex covering the whole project duration, this was I believe already the case of the current Annex1, but the new version should include the modifications - if any – you wish to include after your first months of project experience. This will also be discussed with the experts who might wish to modify it too. Then if the experts give a positive opinion for a possible continuation after this first year, we will have to finalise together this new annex1 and the CEC services will need to submit the possible extension proposals to the ISTC before the 24 May for an opinion at their meeting on 10 June. Only afterwards, a CEC Decision can take place to allow then the money to be committed and a amendment prepared for signature. Other complex processes are also required but hopefully we will be able to run them in parallel...

We are going to send you official letters about it, but I wanted to discuss directly the date with you. We have already provisionally reserved the 13/14 May for these projects review... Jxxxxx seems to be available those dates (preferably the 13) and you need to see which main partners should be present (user/technology/exploitation).

Best regards
FJ

MESSAGE 20
From: Jack
To: Project team
Subject: PROJECT meeting in Madrid (June)
Date: Friday, April 26, 2002 12:51 PM

Dear Colleagues,

unfortunately, we have been informed by partners 8 and 3 that it will be impossible for them to assist the PROJECT meeting in Madrid the 3rd and 4th June.

In order to check other possible dates, we would like to know what organizations could come to Madrid on 6th and 7th June.

Best regards,
Jack

MESSAGE 21
From: Jack
To: Project team

Subject: PROJECT Review
Date: Monday, April 29, 2002 10:55 AM

Dear Colleagues,

you will find enclosed the oficial documentation from the European Commission that has just arrived.

Best regards,
Jack
(See attached file: invitation PROJECT.doc)
(See attached file: List of Experts.doc)
(See attached file: invitation PROJECT.doc)
(See attached file: List of Experts.doc)

MESSAGE 22
From: Fabian
To: Project team
Cc: James, Jack
Subject: Draft version of the 2nd Quarterly Report
Date: Tuesday, April 30, 2002 6:04 PM

Dear partners,

Here you can find attached the draft version of the Secon Quarterly Report.

This document and the First Quarterly Report will be used to create the Report that will be sent to the Commission for the review of the project.

(See attached file: Second Quarterly Report v1.0.doc)

Please, send your comments as soon as possible (before next Friday).

Best regards,
Fabian
(See attached file: Second Quarterly Report v1.0.doc)

MESSAGE 23
From: Jack
To: Project team
Subject: PROJECT. Quarterly report + Special report for the annual review
Date: Monday, May 06, 2002 1:20 PM

Dear Colleagues,

please find attached the last version of the Quarterly Report #2 which includes all the comments from the partners (unfortunately not many contributions). We assume it is approved by you and will be sent to the Commission this week.

As was already mentioned, this report will be used for the special report that the Commission is expecting from the Consortium for the annual review of PROJECT.

The workplan for the special report (including new annex I) for the commission for this week is:

- Monday evening (6th May): A draft version of the Special Report and the New Annex 1 will be sent to the Consortium.
- Tuesday evening (7th May): deadline for comments from the partners for those documents.
- Wednesday afternoon (8th May): Final version distributed to thepartners
- Thursday noon (9th May at 10:00 AM): definite version sent to the Commission.

All the partners should start working on the New Annex 1. Each partner must propose corrections to the old version (objectives, conclusions, etc), specially in the workplan section (workpackage distribution, deliverables, etc).

Since this is a very critical moment of the project, we hope to hear from you with your comments and contributions.

Best regards,
Jack
(See attached file: Second Quarterly Report v1.0.doc)

MESSAGE 24
From: Fabian
To: Project team
Cc: James, Jack
Subject: First version of the Special Report
Date: Monday, May 06, 2002 7:08 PM

Dear Colleagues,

according with the scheduled plan sent by Jack this morning, find attached the first version of the special report that the Commission is expecting from the Consortium for the annual review of PROJECT.

As you know this a critical document in order to reach the continuation of the PROJECT. Please review it and send your comments asap. There are also in the section 2 some paragraphs summarising the most important points of each work package. This must be filled by the WP leaders (of course comments for the rest of partners are welcome)

With your comments (to be received before Tuesday (May 7th) evening) we will send you the final version of the report next Wednesday (May 8th) in the morning.

Thank you very much for your collaboration.

Best regards,
Fabian

(See attached file: Annual Review Special Report v0.1.doc)
(See attached file: Annual Review Special Report v0.1.doc)

MESSAGE 25
From: Jack
To: Project team
Subject: Meeting in Madrid
Date: Tuesday, May 07, 2002 12:39 PM

Dear colleagues,

according to your answers, it looks that it is fine for all the partners to have the meeting in Madrid for days 6 and 7 of June

Fortunately, we have managed to reserve also the venue for the meeting and rooms at the same Hotel
Now I need from you a list of people and number of nights for the eservation at the Hotel.

This information must be sent before the end of this week (before friday,May 10th).
At this moment I only have the following info:

1. Mavis (Partner 6) nights: 5-6-7 may
2. Desmond (Partner 6) nights: 5-6-7 may
3. Kevin (Partner 6) nights: 5-6 may
4. Paul (Partner 6) nights: 5-6 may
5. Lucy (Partner 5) nights: ??
6. Thomas (Partner 5) nights: ??
7. Charles (Partner 9) nights: ??

Best regards,
Jck

MESSAGE 26
From: Thomas
To: Project team
Subject: comments about special report
Date: Tuesday, May 07, 2002 3:00 PM

MESSAGE 27
From: Charles
To: Project team
Subject: URGENT: Re: comments about special report
Date: Wednesday, May 08, 2002 9:28 AM

Dear partners,

I have read the comments by Ronnie (Partner 7) and Lucy (Partner 5) on he report for the annual review. I sent a reply yesterday, but this matter s too important to keep back my comments from the rest of the Consortium. do not agree with the interpretation that the report actually removes the reation of the authoring tool from the list of objectives for the project, lthough I have to admit that the wording is highly ambiguous. The report ays that the creation of the authoring tool *was* the main objective and
that a new objective has been found, but it does not explicitly say that his new objective is now the main objective.
Of course, I admit that dropping the objective regarding the authoring tool s not in line with Annex 1, and the report should make absolutely clear hat the creation of the authoring tool is still the main objective. Unless this objective has really been dropped, in which case this should be explicitly stated. However, such a drastic change would jeopardize the project.) I find it very hard to believe that Partner 1 and/or Partner 2 would givemup the creation of the authoring tool: as software development is much closer to their core business, you would expect them to be more interested in this part of the project than in anything else... (This is not meant as a negative criticism, but I think this is confirmed by the attention theydevote to the dissemination of the tool in the Dissemination and Use Plan.)

Please understand that I do not want to downplay any other complaints, for instance about ignored comments and questions. These complaints are not new and should have been addressed when they emerged instead of letting them accumulate and lead to an outburst.

Best regards,
Charles

MESSAGE 28
From: (Someone working at partner 5)
To: Project team
Subject: Fw: Second version of the Special Report + final version of 2nd quarterlyreport
Date: Wednesday, May 08, 2002 9:53 AM

----- Original Message -----
From: (someone working at partner 5)
To: James
Cc: Project team; <thomas@hotmail.com>; adam; lucy
Sent: Wednesday, May 08, 2002 9:32 AM
Subject: Re: Second version of the Special Report + final version of 2nd
quarterly report

> Dear James, Dear Colleagues,
>
> We have some comments concerning the last proposal you sent us :
>
> 1. Chapter 4 of the report : Planned modifications
> "The main objective of the project was ..." should be replaced by "One of the
> general objectives of the project is ...".
>
> 2. Chapter 6.3.
> Same remark
> " .... project main objective will remain" shoule be replaced by

".....project
> general objectives will remain..."
>
> 3. Thomas sent you 5 lists of sites which were evaluated by us
to
> analyse the difficulties that visually handicapped have to face with when
> trying to train themselves through internet.
> We think that these lists should be included (perhaps has annexes) into
> chapter 6.3.1. or 6.1.2. or somewhere else at your convenience.
>
> 4. I regret that the text "accessibilité des formats" was sent to you in
> french and not in english. Perhaps could you add it to the report as an
> annex to the chapter 6.1.2.after the sentence ".. we have evaluated some
web
> sites according to their pedagogical interest and accessibility"" without
> translating it into english.
>
> Best wishes
>Lucy>
>
----- Original Message -----
> From: James
To: Annie; Sajal; Ben; <Christopher; Charles; Partner 6; partner 7;; Partner 3;
> Fabian; Desmond; Hazel; Partner 4; James; Jack; James; Jonathan; Kevin; Mary; Desmond;Partner 5;
Thomas; Partner 4, Lucy;
> Cc: Jack; Fabian
> Sent: Tuesday, May 07, 2002 8:41 PM
> Subject: Second version of the Special Report + final version of 2nd
> quarterly report
>
Dear Colleagues,
>
> according with the scheduled plan sent by Jack yesterday
> morning, find attached the second version of the special report that the
> Commission is expecting from the Consortium for the annual review of
the project
>
> (See attached file: Annual Review Special Report v0.3.doc)
>
> I hope it will include all contributions received by the partners. In
> anycase, if you feel there is some missed point, please indicate us in
> order to modify before send to the Commission the final version (in case
> any modification it could be desirable to receive your comments over the
> original document indicating paragraph top be modified and the new
> proposal)
>
> As you can observe there is at least some pending points in the executive
> summary (contributions needed for partners 8 and from 1).
>
> Likewise I am attaching you the last version of the 2nd quarterly report
>
> (See attached file: Second Quarterly Report v1.02.doc)
>
> Thank you very much for your comments, contributions and collaboration
>
> Our best regards
>
> James
>
> PS1: In the first quarterly report send to the Commission on March was
> stated in page 7 in section deviations from plan "WP3 has changed its
> beginning time"
>
> PS2: In the Deliverable 6.4 Dissemination and Use plan send to the
> commission the 4th of April 2002 it is possible to observe in page 14 the
> paragraph:
> "By the end of June, some parts of a portal for the partner 7, which is
currently
> under development, will be created using VoiceXML. This portal will show
> how voice interaction can improve the access to a web site. It will be a
> good way to disseminate information about the project, as the partner 7 site is very
> frequently visited by visually impaired people.
>
> One of the parts that will be included in the partner 7 portal will be an
> e-learning course, using VoiceXML. It will show the advantage of using
> voice interaction when accessing an e-learning site. This way of
> dissemination is very important, as one of the objectives of the
> project is the creation of an e-learning portal".

MESSAGE 29

From: Mary
To: Project team
Cc: Sajal
Subject: Report on the evaluation of e-learning sites
Date: Wednesday, May 08, 2002 11:44 AM

Dear Partners,

Please find attached a report on the E-Learning Evaluations we conducted at Partner 8 with contributions from Partner 3, which should be included in the deliverables for Work Package 1.

Best regards.
Mary

MESSAGE 30
From: Hazel
To: Project team
Subject: Status of special report?
Date: Wednesday, May 08, 2002 4:39 PM

Dear Friends,

I am currently working on my contribution to the special report and the 2nd quarterly report. I'm sorry that Partner 8 is behind with this, as I know it is critical, but I've been in several vital university meetings and interviewing new staff which I could not change.

I will provide material by the end of today. You should now have a report from Mary about the evaluation work and I attach here a report from Partner 5 on the accessibility of web authoring tools. These should be submitted to the Commission as draft reports to show the work achieved until this point. However, it is very important that it is made clear that these reports are submitted in total confidence: reviewers may read them, but not discuss them as we need a chance to talk to those responsible for the authoring tools and e-learning sites before these results are made public.

But I am puzzled that we have received no communication from Jack or anyone else in Spain about the status of the objectives stated in the Review Report. For example, I do not accept the statement in version 2of the report "the technological partners are receiving a bit amount of feedback information that is discovering new objectives and the need to reorient the effort to a new final result". This is not my understanding of what has been happening at all - we are simply all beginning to work towards what is needed to achieve our objectives there was NO discussion in our meetings of changing the objectives.
Could we please have a response to the communications from Charles and Ronnie.

Cheers,
Hazel
(See attached file: web_auth_eval.doc)

MESSAGE 31
From: Hazel
To: Project team
Subject: Documents for first review
Date: Thursday, May 09, 2002 12:36 PM

I attach Partner 8 contributions to the 2nd Quarterly Report and the Special Review Report. These MUST replace the text which was in the documents about the WP1 work, as I do not accept that the original texts reflected an accurate picture of the work done.

Could Jack or Fabian please confirm that the changes discussed by Partner 7 and Partner 9 will be effected and that my text will be incorporated. I do not understand where this idea that the project has changed direction has come from and I think it is very dangerous for the review. This is not my understanding of the discussions we had in Paris at all

Cheers,
Hazel
(See attached file: Q2_WP1.doc)
(See attached file: Special_hlp.doc)

MESSAGE 32
From: Jack
To: Project team
Subject: Re: Status of special report?
Date: Thursday, May 09, 2002 12:37 PM

Dear Partner 8,

thank you for your comments. The two documents you have sent will be included for the experts, and will improve our chances of success.

The status of the Special Report is that we are trying to include any comment and correction you are doing.
Find enclosed a new version for your comments. This is the reason of sending you drafts and preliminary versions of the documents: to receive comments, suggestions and even contributions that will improve the final result.

(See attached file: Annual Review Special Report v0.4.doc)

This is a very important document. It should be a document not only agreed by all, but also of good quality. Please, send your comments, corrections, suggest other options, send new paragraphs...anything that could improve the document!!!

Attached to this message you will find a first version of the a new Annex
1. Again, this is a first version: please, send your contibutions and comments (it would be better if you use the "track changes" options in Word).

(See attached file: Annex1 Description of work-V13.doc)
Our best regards,
Jack

P.D: As was explained, there will be no review meeting in Brussels. All the process will be run sending documents to the experts.

MESSAGE 33
From: Jack
To: Project team
Subject: Meeting in Madrid
Date: Thursday, May 09, 2002 5:28 PM

Dear Colleagues,

I need to send tomorrow friday to the Hotel Aramo the list of people that would need reservations for the Meeting in June.

To the people that has answer, please, check that the information bellow is correct.

Best regards,
Jack

1. Mavis (Partner 6) nights: 5-6-7 june
2. Desmond (Partner 6) nights: 5-6-7
3. Kevin (Partner 6) nights: 5-6
4. Paul (Partner 6) nights: 5-6
5. Lucy (Partner 5) nights: 5-6
6. Thomas (Partner 5) nights: 5-6-7-8 (double room)
7. Charles (Partner 9) nights: 5-6-7
8. Morris (Partner 7) nights: 5-6
9. Ronnie (Partner 7) nights: 5-6
10. Elsie (Partner 7) nights: 5-6-7
11. Adam (Partner 7) nights: 5-6-7-8

MESSAGE 34
From: Jack
To: Project team
Subject: Review (Submission to Brussels)
Date: Thursday, May 09, 2002 5:28 PM

Dear Colleagues,

we will send to Brussels the documentation for the review tomorrow Friday at 14:00 (Madrid time).

Please, any correction or contribution you would like to include in the Special Report or the Annex 1 (version 13) must get us before 13:30.

Best regards,
Jack

MESSAGE 35
From: Desmond
To: Project team
Subject: review of documentation
Date: Monday, May 13, 2002 1:58 PM

Dear Colleagues,

i fully agree with Hazel. The german partner does not accept the proposed changes to the project either. It is unheard of that one of the partners, even if they might take the lead role, goes ahead and makes such major changes without an intensive consultation. You are seriously endangering the continuation of the whole project. The Paris discussions
and their results do not reflect this at all.

Desmond

MESSAGE 36
From: Hazel
To: Project team
Subject: Re: PROJECT meeting in Madrid (June)
Date: Monday, May 13, 2002 7:16 PM

I don't understand this message. Partner 8 did indicate that these dates were not suitable, as soon as they were posted. It is not possible for me to attend on the 6-7 June.

Cheers,
Hazel

Jack wrote:

> Dear Hazel and Erin,
>
> the decision of changing from 3-4 June to 6-7 June was adopted by the
> Consortium in order to manage to assure the participation of partners 3 and 8.
>
> Unfortunately, no partner (included partners 3 and 8) transmitted their
> inability to attend on 6-7 June.
> At this stage I would assume that most of the people attending will have
> their plane tickets.
>
> I stress the interest of the consortium in the attendance of all the
> partners in every meeting. In that sense I would appreciate if partners 3 and
8 could find someone to come to Madrid.
>
> Please, let me know if it is totally imposible to everyone in partners 3 and 8
> to attend the meeting on 6-7 June.
>
> Best regards,
>
> Jack
>

MESSAGE 37
From: Partner 5

To: Project team
Subject: Fw: Undeliverable Mail
Date: Tuesday, May 14, 2002 8:34 AM

----- Original Message -----
From: "MailMAX Error Responder" <MAILER-DAEMON@joyeux.pelsys.com>
To: partner 5
Sent: Tuesday, May 14, 2002 10:32 AM
Subject: Undeliverable Mail

> Sorry partner 5
> Your message to: the project team was not delivered.
>
> MailMAX encountered a permanent failure when trying to connect to the
remote host. We will NOT try to deliver your outgoing message again.
> The Error was:
> 911 Could not resolve Host domain for user: project team
>
> *** This message was automatically generated by the MailMAX Error
Responder ***
>
> -- 8< -- 8< -- [Original Message As Follows] -- >8 -- >8 --
> Received: from partner 5 (ppp3004-cwdsl.fr.cw.net[62.210.104.5])by
JOYEUX(MailMax 3.065) with ESMTP id 4659060 for <project team>; Tue,
14 May 2002 09:32:37 +0100 GDT
> Message-ID: <00ef01c1fb18$8818d440$0201 partner 5>
> From: lucy>
> To: <project team>
> Subject: Tr: Project meeting in Madrid (June)
> Date: Tue, 14 May 2002 09:25:28 +0200
> MIME-Version: 1.0
> Content-Type: text/plain;
> charset="iso-8859-1"
> Content-Transfer-Encoding: 8bit
> X-Priority: 3
> X-MSMail-Priority: Normal
> X-Mailer: Microsoft Outlook Express 4.72.3110.5
> X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
>
> -----Message d'origine-----
> De : lucy
> A : Thomas
> Cc : Adam
> Date : mardi 14 mai 2002 08.59
> Objet : Tr: Project meeting in Madrid (June)
> >
> >-----Message d'origine-----
> >De : Lucy
> >A : Hazel
> >Cc : Project Team;
> ; Jack
. Date : mardi 14 mai 2002 08:57
> >Objet : Re: project meeting in Madrid (June)
> >
> >>Dear Colleagues,
> >>
> >>I think that there is a misunderstanding!
> >>
> >>partners 7 and 5 said, at the Paris meeting, that it was VERY DIFFICULT
for
> >us
> >>to come to Madrid on 6 and 7 June. The 3 and 4 June were much better
for
> >>us...
> >>
> >>Now, everything is settled : we have ordered our flight tickets and we
are
> >>booking our Hotel rooms, despite of the fact that on the 7, Ronnie
> >shall
> >>have to travel to Milan and then to London, and that Morris and
> myself
> >>will have to travel to Paris and then to London (we all have to be at
the
> >>partner 7 Board meeting on Saturday 8 June at 9 o'clock in London).
> >>We shall loose part of the project meeting, on Friday 7...
> >>
> >>Do you think that we should revise the date ?
> >>
> >>Regards,
> >>
> >>Lucy
➢ >>

MESSAGE 38
From: Charles
To: Project team
Subject: Requirements WP1/WP3: request for comments
Date: Thursday, May 16, 2002 2:59 PM

Dear partners,

Please find attached an updated version of a requirements document for WP3. It incorporates the findings from the report on accessibility of web authoring tools (Partner 3) that was distributed last week. Some of the requirements have a priority level but most of them don't. Please let me know if you think that the levels should be change or if you wish to add priority levels.

Regards,
Charles
(See attached file: AT_Vision_v02.htm)

MESSAGE 39
From: Jack
To: Project team
Subject: Web page / Madrid
Date: Monday, May 20, 2002 12:42 PM

Dear Colleagues,

some people has informed us of difficulties in reaching PROJECT web page (www.project.org).

Please, we would appreciate if you can try to get the URL www.project.org and let us know if you have had problems. In that case, inform us what browser and version have you used. (if you have problems you should use the URL www.project.org/index.html.es).

Regarding the meeting in Madrid, I confirm that for the final dates (6-7June) we have the following reservations at the Hotel Aramo:

1. Mavis (Partner 6) nights: 5-6-7 june
2. Desmond (Partner 6) nights: 5-6-7
3. Kevin (Partner 6) nights: 5-6
4. Paul (Partner 6) nights: 5-6
5. Charles (Partner 9) nights: 5-6
6. Mary (Partner 8) nights: 5-6-7
7. Kenneth (Partner 3) nights: 5-6
8. Erin (Partner 3) nights: 5-6
9. Michael (Partner 4) nights: not confirmed
10. Eddie (Partner 4) nights: not confirmed

Best regards,
Jack

MESSAGE 40
From: Erin
To: Project team
Subject: web authoring tools report reminder
Date: Monday, May 20, 2002 1:09 PM

Dear all,

This is just a reminder to let you know that the draft attachment that was sent out called evaluationdraftv2.doc is in the process of being updated to reflect the rest of the findings from the investigation into various web authoring tools. The draft report will be separated into 2 reports, one report is focusing on the accessibility of the mark-up produced by
Authoring tools, whilst the second report is looking at the accessibility of the web authoring tool. These reports should be completed over the next few weeks.

Documents that refer to this draft may need to be updated to reflect additional findings. If you have any queries about this please do not hesitate to contact me.

Kind regards
Erin

MESSAGE 41
From: Mary
To: Project team
Cc: Sajal
Subject: Re: Web page / Madrid
Date: Monday, May 20, 2002 1:12 PM

Dear All,

I had no problems accessing the PROJECT web page at www.project.org/index.html.es, however I couldn't access it at www.project.org using IE 5.5 or Netscape Communicator 4.6. I also tried to doundload the ConPalabras 1.0 plug-in from http://www.conpalabras.com/project/wp4/examples/DescargaConPalabras.ht ml, however did not succeed.

Is there another site we can access the plug-in from?

Many thanks.
Mary

MESSAGE 42
From: Erin
To: Project team
Cc: Project team, Kenneth
Subject: RE: Requirements WP1/WP3: request for comments
Date: Monday, May 20, 2002 3:03 PM

Dear Charles,

I have copied you in with a conversation that went on BCAB and W3C with regards to Java and accessibility.

I have some questions with regards to the use of Java. Do you know if it would be possible for a screen reader such as JAWS to access the new authoring tool for PROJECT if it is developed in Java (with voice), without having to install the Java access bridge or utilities in order to access the tool? We have had problems accessing Java based tools. For example, if you look at the free web authoring tool Arachnophilia version 5 which can be found at: http://www.arachnoid.com/arachnophilia/index.html this tool has been designed using Java and is totally inaccessible to a screen reader.
After the installation of this tool, the user has to install the JRE in order to access the tool. I asked the W3C list what to do next in order to try to get the tool to work with a screen reader, a W3C member suggested downloading the Java access bridge and Java access utilities in order to use the tool with a screen reader. After downloading these additional tools I found that the web authoring tool still did not work, it was later confirmed that this tool had not been designed with accessibility in mind. However,
It appears that these downloads are likely to be needed even with an accessible
Java application, this is a concern for PROJECT.

Downloading and installing the plug-ins I needed was very difficult primarily due to web site design. It is not within the scope of PROJECT to make this web site accessible and usable and, from our experiences, we can not expect users of the PROJECT authoring tool to download the plug-ins required without assistance. I think that if the user must download these
additional tools in order to use the tool, they will need support (a step by step process will be needed) or else they will feel frustrated and possibly go elsewhere.

If you look at the previous version of Arachnophilia (version 4), this web authoring tool has not been designed using Java and is one of the most accessible web authoring tools that I have come across to a screen reader user, though it does not offer all the additional functions that you may get with a tool such as DreamWeaver and does not utilise voice.

If the additional downloads are needed, it would be necessary to have all these additional Java tools installed/partially installed on the CD that is distributed with the software so that the user can independently install these, quickly and easily. For example the CD during installation could link to the sun web site so that it automatically searches for the latest software to be downloaded. I think that all sighted people would possibly need to install the JRE, whilst screen readers users would need the JRE, access bridge and Java utilities. During the installation process the tool would need to ask the user for their confirmation and explain why they are needed.

We have asked people if they know of any accessible Java applications, but have not been able to find any. Do you have any details of any Java software that we can look at that demonstrates accessibility? It would be useful to see how they work with a screen reader, have you tried this yourselves?

As a suggestion, is it possible to have a basic prototype of the tool quite soon, so that it can be tested with both the self voicing part and a screen reader to find out if it is possible for the screen reader user to use the tool without all these extra Java downloads?

Regards
Erin

MESSAGE 43
From: Jack
To: Project team
Cc: JAmes,Fabian
Subject: PROJECT Review
Date: Friday, May 24, 2002 12:56 PM

Dear Colleagues,

I am specially happy to tell you that the Experts have recommended the continuation of PROJECT project for the next 15 months (untill the end of the project December 2003). This is only the first step in the reviewing process.

You will find attached the letter from the European Commission and the Evaluation Report from the experts.

Thank you for your contributions in this very important moment.

As you see in the letter from the Commission, we need another hard effort for the next few days. We need from each partner the following documentation for next Tuesday May 28th:

1.- Updated Finantial Information for each partner (Annex 2)
2.- Updated CPF

I will send to each partner the Annex2 and CPF that was sent to the Commission. Please, send the updated versions back urgently. In the CPF you will be able to propose changes for the year 2 and year 3. The year 1 cannot be changed.

Best regards,
Jack

(See attached file: result letter.doc)(See attached file: Project Review
Report PROJECT R2 final.doc)

MESSAGE 44
From: Hazel
To: Project team
Subject: Re: PROJECT Review
Date: Friday, May 24, 2002 7:08 PM

Dear Jack,

This is indeed excellent news Well done. Could you please post the final versions of the documents which were submitted for the review (particularly the special review report) on the server so we can take copies.

Cheers,
Hazel

p.s. I'm sorry I won't be able to join you in Madrid, but I will circulate material before hand.

MESSAGE 45
From: Fabian

To: Project team
Cc: project team
Subject: Re: PROJECT
Date: Monday, May 27, 2002 11:33 AM

Dear Hazel.

The final versions can be found in the folder "/project/Official Documentation" in the FTP Server. They are the documents with numbers: 98, 99, 100, 101, 102 and 103.

In the "3. Project-doclist.xls" file, there is a brief description of each of them.

Best regards,
Fabian

MESSAGE 46
From: Jack
To: Project team
Cc: James, Fabian
Subject: PROJECT Review
Date: Tuesday, May 28, 2002 5:27 PM

Dear Colleagues,

this is to remind you that we need very urgently the updated Annex 2 and CPF for every partner for TODAY (thank you to the partners that already have sent their files).

According to the comments from the experts (see email sent 24-may) slight changes are needed in the Annex 1 version 14 that was sent for the review (see FTP server, document number 99). This new version will circulate tomorrow for your comments, to be sent immediately to the Commission.

Best regards,
Jack

MESSAGE 47
From: Jack
To: Project team
Subject: Review (Annex 1 v.15)
Date: Wednesday, May 29, 2002 5:34 PM

Dear colleagues,

according with the experts and the Commission a new version of the Annex 1 has been prepared. It has slight modificactions in the Chapter 9 (Workplan) following the recommendations of the experts.

This document should be sent tomorrow to the Commission along with the updated Annex 2 and CPF.
Please, send your comments and contributions to the Annex 1 v.15 urgently. We will send it tomorrow afternoon.

Remind the partners that have not sent the Annex 2 and/or CPF to do it urgently.

Best regards,
Jack

MESSAGE 48
From: Jack
To: Project team
Subject: Agenda for Meeting in Madrid
Date: Wednesday, May 29, 2002 5:39 PM

Dear colleagues,

please find attached the first version of the Agenda for the meeting in Madrid next week. Send your comments, suggestions, corrections...

Any proposal to participate in the meeting with presentations is welcome.

Best regards,
Jack
(See attached file: Agenda Madrid 2002.doc)

MESSAGE 49

From: Jack
To: Project team
Subject: Review (Annex 1 v.15)
Date: Wednesday, May 29, 2002 5:41 PM

Dear colleagues,

according with the experts and the Commission a new version of the Annex 1 has been prepared.
It has slight modificactions in the Chapter 9 (Workplan) following the recommendations of the experts.

This document should be sent tomorrow to the Commission along with the updated Annex 2 and CPF.
Please, send your comments and contributions to the Annex 1 v.15 urgently.
We will send it tomorrow afternoon.

Remind the partners that have not sent the Annex 2 and/or CPF to do it urgently.

Best regards,
Jack
(See attached file: Annex1 Description of work-V15.zip)

MESSAGE 50
From: Adam
To: Project team
Subject: Opera
Date: Monday, June 03, 2002 10:53 AM

Dear all,

Opera propose a free complete version of their browser to to visual impaired people and visual impaired communities.

Adam.

MESSAGE 51

From: Adam
To: Project team
Subject: Authoring tools and accessibility
Date: Monday, June 03, 2002 10:53 AM

Dear all,

After their last flash version (FLASH MX) which includes accessibility requirements (I haven't tested it yet), Macromedia will soon propose authoring tools : ELearning Suite.

Adam

MESSAGE 52
From: Fabian
To: Project team
Cc: James, Jack
Subject: Second Quarterly Report - final version
Date: Monday, June 03, 2002 10:54 AM

Dear partners,

Here you can find attached the last version of the Second Quarterly Report. There is one change on it. Now the final table "Cumulative Effort to-date (person hours)" is filled. It includes the planned and actual effort.

Please, send your comments if you find any mistake on it.

(See attached file: 100. Second Quarterly Report v1.05.doc)
Best regards (and see you next Thursday).
Fabian

MESSAGE 53
From: Jack
To: Project team
Subject: Some details Meeting in Madrid
Date: Tuesday, June 04, 2002 2:07 PM

Dear Colleagues,

please find attached the final version of the Agenda for the meeting in Madrid (the same as the previously sent).

(See attached file: Agenda Madrid 2002.doc)

Some details:
- Address of Hotel Aramo
Paseo Santa Maria de la Cabeza, 73
28045 Madrid
Phone: +34 91 473 9111
Fax: +34 91 473 9214

You can take a look to http://www.abba-aramohotel.com/main.english.html for
more information

- Address of the venue: (see map attached to this message)

Centro de Formación Puente Princesa
Universidad Corporativa Unión Fenosa
Calle Antonio López, 193
28026 Madrid

(See attached file: mapa_puenteprincesa.gif)

- Recently, a new underground line from the airport has been opened. (see file with underground information)

It is a new and cheaper possibility to go to Madrid. It takes you from the airport (Aeropuerto) to the center of Madrid (Nuevos Ministerios) in about 15 minutes (Line 8). Then in the metro station of Nuevos Ministerios you have taxis that can take you to the Hotel

(See attached file: metro madrid.pdf)
Best regards,
Jack

MESSAGE 54
From: Hazel
To: Project team
Subject: PROJECT: information for discussions of WP1 and WP5

Date: Wednesday, June 05, 2002 10:25 AM

Dear Friends,

As I will not be able to join you in Madrid, I am circulating two documents concerning the work in WP1 and WP5. Mary will take you through discussion of these documents.

The plan for Deliverable 1.1 covers all the work we have been doing in WP1, so this will be quite a substantial document. I have included chapters for specifications for both the elearning portal and the elearning authoring tool, although for the latter we have D1.2, but this is only an internal document.

One very important matter to consider is that I am still waiting for questionnaires on unmet learning needs from most of the user group partners. Please remember that we agreed that each partner would produce 15 questionnaires for this exercise. Thomas has kindly sent me a reasonable number, but ALL other partners owe me their questionnaires! Please try and get the filled out in some detail as well. I noticed from the initial questionnaires I received for the last deadline that quite a few gave very minimal answers, please ask people to elaborate. The final version of the deliverable is due in Month 12, so I ask people to provide the questionnaires by the middle of July at the latest, to allow time for analysis and writing.

Hope the meeting in Madrid is productive.

Cheers to all,
Hazel

Textual chunk, Wishes
Mary sent message *13* on 19/4/02 to wish the team a good weekend. Mary sent message *14* on 19/4/02, which was identical to *13*, but sent at a different time.

Textual chunk, Review
Jack sent message *19* on 25/4/02 informing the team that he had received a message from the European Commission. They (European Commission) expected information today. The review to take place Mid May will determine whether the project continues into its second year. The team were informed that their will be no meeting with the experts in Brussels, and that the documents would be examined. A summary of the documents and their deadline was also included in this message. Jack sent message *21* on 29/4/02, including the official documentation sent by the commission. Jack sent message *34* on 9/5/02 informing the team that he would be sending the documentation to Brussels by the mentioned time, and to send him anything before a given time. Jack sent messages *43* on 24/5/02 informing the team that the experts have recommended the continuation of the project for a further 15 months. In this message Jack also thanked all the partners that were involved and summarised the information that he required, including a deadline it must be received by. Hazel sent message *44* on 24/5/02 saying that the news Jack had included in message *43* was excellent news, and informed Jack that she would like to see a final version of the document which was sent. Fabian sent message *45* on 27/5/02 informing the team and Hazel where copies of the document that Hazel was referring to in message 43 could be accessed. Jack sent message *46* on 28/5/02 informing the team that he urgently required Annex 2 and the CPF by today. In this message he also informed the team that a version would be sent the next day. Jack sent message *47* on 29/5/02 informing the team that a new version for Annex 1 had been prepared, and the changes that had been made were summarized. The team was informed in this message of two other items. One the document was going to be sent to the commission on the next day, and two, a reminder for those who did not send their items to act on it immediately. Eight messages were sent that was associated with this goal.

Textual chunk, Quarterly report
Fabian sent message *22* on 30/4/02, informing the team that he had attached to the message a draft document. Jack sent message *23* on 6/5/02, the last version of the report. Hazel sent message *30* on 8/5/02 informing everyone that she was running late with sending her contributions, but would send them later on in the day. Hazel sent message *31* on 8/5/02 attaching to the message her contributions, which should replace the existing text. Fabian sent message *32* on 3/6/02, which had the last version of the second quarterly report. A change that was made was summarized. In this message team members were also requested to send comments and mistakes. Five messages were sent that was associated with this goal.

Textual chunk, Special report
Jack sent message *23* on 6/5/02, to inform the team that the second quarterly report was going to be used for the special report, that the commission expects from the consortium for the annual review of the project. In this message the work plan was also included, mentioning dates and activities. Team members were also informed on what they should be working on. Comments and contributions were requested as this was an important deliverable. Fabian sent message *24* on 6/5/02, attaching the first version of the report. This message summarized what was required from team members and when the final document was going to be sent. Comments were requested as soon as possible. Thomas sent message *26* on 7/5/02, but had no attachments or anything written in the main body of the message. Charles sent message *27* on 8/5/02 informing the team that he read the comments of Ronnie and Lucy and had comments that he felt were too important to hold back, therefore had to be shared with the team. Charles recommended that the issues, which were raised, are dealt with before an outburst occurs. A person who did not attend the meeting from partner 5 sent message *28* on 8/5/02. In it were comments to a proposal which Lucy had sent. Hazel sent message *30* on 8/5/02, informing the team that she was working on the contributions, and made an apology for being late with this task. She mentioned her intentions to send this information by the end of the day. In this message Hazel also mentioned her surprise at the lack of communication from partners in Spain, especially Jack. Hazel also requested answers for issues raised by Ronnie and Charles. Hazel sent message *31* on 9/5/02 which included the contributions which were required from partner 8. In this message she also asked Jack and/or Fabian to confirm the changes proposed by partners 7 and 9. Hazel mentioned that what she had read in the e-mails had not been her understanding at the 2nd face-to-face meeting, held in Paris. Jack sent message *32* on 9/5/02 thanking Hazel for her comments, mentioning that he would include her work as well. A new version of the document was also included, which should be agreed by all. In this message Jack also proposed using the track change facility to show changes and for team members to send any information that they feel would benefit the document. Jack sent message *34* on 9/5/02 informing the team that he would send this document on the next day to Brussels. Paul sent message *35* on 13/5/02 informing the team that he agreed with Hazel that the German partners did not agree to the proposed changes as well. 10 messages were sent that was associated with this goal.

Textual chunk, Next meeting date
Jack sent message *20* on 26/4/02, informing the team that partners 9 and 3 could not attend the meeting on the 3rd and 4th June. In this message he asked to find out which partners could make it on the 6th and7th June. Jack sent message *25* on 7/5/02 informing the team that it seems fine for everyone to attend the new dates proposed in message *20*. The same venue as the kick of meeting was reserved. In this message Jack said that he required the list of people and the number of nights that were necessary for team members to stay to attend this meeting. Jack sent message *33* on 9/5/02 to inform the team that he was going to send the booking information to the hotel on the next day, requesting team members to check the information to make sure that it was correct. Hazel sent message *36* on 13/5/02, informing the team that she could attend on June 3rd and 4th, but not the 6th and 7th. Lucy sent message *37* on 14/5/02 informing the team that their had been a misunderstanding. In this message she mentioned that the 3rd and 4th was better for them , as the 6th and 7th was difficult for them to attend. Lucy also mentioned that the tickets had been ordered, proposing to revise the date if necessary as they need to attend a meeting on that Saturday. Jack sent message *39* on 20/5/02, informing the team that the final dates to hold the meeting were 6th and 7th June. The reservations for the hotels were also listed. Hazel sent message *54* on 5/6/02 informing the team that she could not attend the meeting, and circulated two documents which she said Mary would discuss. In this message Hazel also mentioned that she was still waiting for the questionnaires on unmet learning needs, which Thomas had sent back to her, setting a deadline for the remaining questionnaires to be returned back to her. Seven messages were sent that was associated with this goal.

Textual chunk, Agenda for the meeting
Jack sent message *48* on 29/5/02, which had the first version for the meeting attached. Included in this message was a request for comments, suggestions and proposals to participate in the meeting. Jack sent message *53* on 4/6/02, informing the team that the final version for the agenda had been produced. Included in this message was the address of the hotel and directions for the meeting venue. Two messages were sent that was associated with this goal.

Textual chunk, Project glossary
Charles sent message *6* on 25/3/02 informing the team that during the 2nd face-to-face meeting in Paris, he identified that team members had different meanings with the word 'portal'. To prevent this kind of misunderstanding he proposed a first version of a glossary. In this message he mentioned that comments and additions were welcomed.

Textual chunk, Project portal
Adam sent message *8* on 28/3/02, informing the team that he had placed the project portal online. This message also included the URL to access the portal and welcomed comments and suggestions to this first draft. The functions which were currently active were summarized as well. Hazel sent message *16* on 24/4/02, which contained her comments on the web pages which were sent by Adam. Her main comment was that the pages did not meet the Bobby standards. In this message Hazel welcomed comments as well. Adam sent message *17* on 25/4/02 informing that he had read Hazel's message. In this message he also reminded the team of the main goal which was established during the previous face-to-face meeting. All comments which are received will be kept in mind and a plan of what they are currently working on was shared with the team as well. Christopher sent message *18* on 25/4/02 listing what they were proposing to do. In this message comments were welcomed as well. Four messages were sent that was associated with this goal.

Textual chunk, Browsers
Charles sent message *12* on 16/4/02, with information on the Cynthia web browser. In this message a report on the demo was also attached. Potential reasons for co-operating with this company were also mentioned in this message. Adam sent message *30* on 3/6/02, informing the team the Opera were offering a free version of their browser to visually impaired persons. Two messages were sent that was associated with this goal

Textual chunk, Java

Erin sent message *42* on 20/5/02 informing Charles in particular, but sending the message to the whole team with a conversation that she had concerning Java and accessibility.

Textual chunk, Dissemination and use plan
Fabian sent message *2* on 21/3/02, informing the team that they almost had all the contributions for this document which had to be delivered to the project officer before the end of March. Fabian sent message *5* on 22/3/02, which included the draft version of the dissemination and use plan. Comments were requested by a set date. In this message Fabian mentioned that some parts still had to be completed and that Else would send a more complete document next week as she is currently in Madrid. Fabian sent message *7* on 25/3/02, including a second version of this work. Comments were requested as soon as possible. Fabian sent message *9* on 1/4/02, including the third version, which had all comments received inputted into this version. In this message Fabian also informed the team that point 3 had been modified, and that this version would be sent to the project officer next week unless their were any comments from team members. Four messages were sent that was associated with this goal.

Textual chunk, Publications
Fabian sent message *2* on 21/3/02, informing the team that he had detected that their were no contributions regarding publications in technical or scientific magazines. In this message Fabian made a request for any proposals to be sent to him as soon as possible. Desmond sent message *3* on 22/3/02 informing Fabian, but sending the message to the whole team that he has experienced difficulties in delivering proposals. In this message Desmond suggested that partner 1 prepare a general proposal and then to translate it to the different languages that are included in this project. Desmond also asked for this suggestion to be confirmed. James sent message *4* on 22/3/02, drawing attention to some information which had been missed that had been circulated a few week prior. This information was included in this note as well, with other possibilities for papers which could be written. Three messages were sent that was associated with this goal.

Textual chunk, Conferences
Ronnie sent message *1* on 19/3/02 forwarding a message which contained information on an IST conference.

Textual chunk, E-learning
James sent message *10* on 5/4/02 informing the team for their information that the European Commission had an interim report on e-learning. The URL for that report was included in the message. Mary sent message *29* on 8/5/02, informing the team that she had attached a report on e-learning evaluations which were conducted at partner 8's organization, and with contributions from partner 3. In this message Mary also mentioned that this report would be used as part of the deliverables for work package 1. Two messages were sent that was associated with this goal.

Textual chunk, E-learning problems
Mary sent message *11* on 5/4/02 informing the team as promised at the Paris meeting she is sending a description of the problems. In this message she said that she now requires the help of the technical partners in defining causes of the problems and all partners to help specify solutions to those problems. Mary proposed that the technical partners could implement some solutions using v-xml. Also, video clips were placed on the project server in a named directory, as they take up a lot of space. In this message Mary also said that she would like ratings to be allocated to the problems, which should be sent to her and then she would forward to the technical partners. One message was sent that was associated with this goal.

Textual chunk, Authoring tool
Mary sent message *13* on 19/4/02, informing the team of some interesting information that she had found. In this message background information and a URL had been included. Partners 2 and 3 will be reviewing the document on authoring tools. In this message Mary reminded team members to provide feedback, as this would lead to a better proposed solution. Mary sent message *14* on 19/4/02, which was identical in nature to message *13*, but was re-sent a few hours later. Charles sent message *15* on 24/4/02, informing the team that a Zip file had been attached to this message. One file included the requirements for the authoring tool, and all other files were for your information purpose only. In this message, it also mentioned that the technical partners would like comments and questions from the user group partners. The technical partners were named, but Charles did indicate that he should be informed if any names were missing from the list. Hazel sent message *30* on 8/5/02, which had attached to it a web authoring tools accessibility report, that was going to be submitted to the consortium as a draft document. Charles sent message *38* on 16/5/02 informing the team that he had updated the document on requirements for the tool, using the findings from web authoring tools, provided by partner 3. In this message Charles asked team members to inform him if the level should be changed or if priority levels should be assigned. Erin sent message *40* on 20/5/02 reminding the team that their document is still being updated. In this message she also informed the team that two reports should be completed in the next few weeks, and that she should be contacted if there are any queries. Adam sent message *51* on 3/6/02 informing that their last version includes accessibility requirements. Seven messages were sent that was associated with this goal.

Textual chunk, Web page for the project
Jack sent message *39* on 20/5/02 informing the team that some partners had encountered a difficulty in using the web page. In this message Jack informed the team to try and use the URL and to inform him if any problems were encountered, naming the version and the browser that was used. Mary sent message *41* on 20/5/02 saying that she had no problems accessing the project web page, but did encounter problems accessing that page using another version of Internet Explorer and Netscape communicator. Two messages were sent that was associated with this goal.

Textual chunk, Compalabras plug in
Mary sent message *41* on 20/5/02 informing the team that she could not download this plug in a named web site, and asked if their was another site that they download it from.