DEAF WAYS OF WRITING NARRATIVES:

Translation Vs. direct composition in deaf groups with different bilingual skills.

by

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A thesis submitted in partial fulfilment of the requirements for the degree

of

PhD

City University,

London

Department of Language and Communication Sciences

August 2004

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ACKNOWLEDGEMENTS

This is probably the page less read in a thesis, but for me it is my opportunity to thank all those people who made an impact on this work in various ways.

I thank a number of supervisors who have been with me for various periods of time and particularly the last and longest one, Ros Herman. Her help, particularly in analysing the statistical results, as well as putting together all these diverse bits of literature was great. I also thank Bencie Woll and Venetta Lampropoulou for keeping a subtle eye on this piece of work.

I am enormously indebted to a number of teachers, headmasters and students that I met during my research. All deaf students co-operated smoothly (despite their alleged dislike to writing tasks!). All deaf and hearing teachers at schools gave me a generous amount of their time and each put a lot of effort to give valid information about the language status of their students. In particular I would like to thank Mr. Papaspirou for his help and advice on designing the sign language assessment scale and Mrs. Sarinopoulou who spent considerable time with me to discuss the language and family background of the students.

As for the help that I received on a non-academic level it is invaluable and goes to my new friends, my old friends and my family. My new friends... those who I met in London and with who I spent the mature-student life, helping each other to find motivation, sharing our insecurities for our post-PhD lives or just sharing time together. I know none expects to be acknowledged: Alex, Martha, Maria, Klimis, Theodore, Andreas, Stelina, Diana, Skye, Cabral, Giannis and Lia.

My old friends... those that I know since always and with who I have parallel but never deviating lives, those who kept friendships warm and cheerful through distance and time: Lila, Alkisti, Antigoni, Hristoforos, Andrew and cousin Giannis.

The biggest thank goes to my family, the hard core of my motivation and achievement: my mum, my dad and my sister.

Abstract

This thesis investigates the writing process in narratives by Greek deaf students in two different conditions: a) translation from Greek Sign Language into written Greek from video stimuli and b) direct composition in written Greek from picture stimuli. Following language assessments, the deaf students were divided into three language groups according to their differing abilities in Greek Sign Language and written Greek. Two parameters were manipulated: language skills and source material used for writing. The study aims to answer the questions:

  a) How do the different groups make use of the source material (i.e. which students benefit from the use of sign language)?
  b) Which material produces better written texts? and
  c) What are the characteristics of the language produced, among the different groups (i.e. the profile of errors)?

Four qualitative analyses have been undertaken on the texts: amount/type of information given, organisation of information, grammatical characteristics of the text, and error analysis. The results show that the use of sign language in the writing process has positive effects only on specific groups and on specific aspects of writing.

Keywords: Deaf students, writing, narratives, bilingualism, translation, direct writing.

INTRODUCTION

The present study concentrates on the writing skills of deaf students educated in Greece. In Greece, bilingual education for deaf children was only recently recognised by law in 2000. Although there is some research concerning deaf writing in Greece, there is none to date that considers the bilingual nature of deaf writers in its design. The present study, views Greek deaf people as bilinguals, and approaches deaf writing from a bilingual perspective.

This topic encompasses many aspects of language and literacy development theories, which will be elaborated in the following chapters. The most relevant are theories on *writing, language acquisition* and *bilingualism*. The literature review will elaborate each of these theories and their aspects, which are relevant to deafness, in separate chapters.

The first chapter explores writing as a linguistic phenomenon and as a developmental and cognitive process. As a linguistic phenomenon it is relevant to the topic of the study because writing is dependent upon the oral mode of language. Writing development has been argued to start as "speech written down" and gradually take on a life of its own (Ong, 1982; Singer, 1995). This relationship of written and oral language is central to research on deaf writing. The Deaf population does not have full access to the oral mode of the language they are learning to write neither does their natural language of signs have a written form to date. The chapter looks at research on the development of writing in relation to speech raising such questions as: How much do deaf writers differ from hearing writers? How crucial is the lack of a written form of sign language for deaf literacy? How crucial is non-access to the oral mode to deaf literacy? If writing operates in a continuum of orality[1] to literacy, where is deaf writing placed? Is deaf writing developmentally immature i.e. too oral or is there an alternative interpretation to the errors made by deaf writers? What are the characteristics of orality and can they be detected in deaf writers' texts? The

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[1] Languages that have not developed a written form are characterised more by specific communicative styles and structures than languages with literacy. Chapter 1 will elaborate the issue of orality vs. literacy more extensively.

above are key issues the literature raises and these have been used to formulate the research questions of the present research and also they are the basis of much of the discussion.

Within this chapter the literature review then focuses on the genre of narrative, which is the vehicle of language competence to be explored in the present study. The genre of narrative is examined for its psychological and cognitive reality, for its structure and for its grammatical features. Different approaches to narrative analysis will be presented from the existing literature and this will explain the methods of text analysis to be applied in the present study. Issues that the literature review raises in this area include: What are the current trends in text analysis and on what criteria is text analysis based? Do different methods of analysis contradict each other or is it just that they look at different aspects of a text? How do researchers segment and measure different aspects of a text? Should we combine a variety of measures in order to have a more rounded idea of the quality of a text? How do all these measures apply to the analysis of texts produced by atypical language users such as deaf writers?

The second chapter explores language acquisition and language processing issues that are relevant to the deaf population. The most pervasive issue relevant to deafness is that of a critical period, either for first or second language learning (hence "first language" will be indicated as "L1" and "second language" as "L2"). As has been noted many times, the deaf population is very unusual when it comes to language acquisition as 95% of deaf children come from hearing families. Hearing families are not usually skilled at providing meaningful communication early in the deaf child's life. This means that the critical period problem for L1 acquisition applies to the overwhelming majority of our target population. Even for the remaining 5% who come from deaf families and have a more typical L1 acquisition in sign language, the critical period issue remains relevant. This is partly because parents may themselves be atypical in having acquired sign language in a non-native fashion. The critical period debate will be explored in this chapter in order to understand the degree to which deaf population is relevant to L1 and L2 acquisition.

The debate on critical period is more complicated as far as L2 is concerned and it is relevant to deafness because of the impact on their education. Methodologies in bilingual education are nowadays the subject of great controversy and critical period is at the heart of this. Issues raised here are: If critical period exists, does this mean that deaf people have pathologically disadvantaged language abilities? If critical period exists does this apply to the same degree in L1 as well as in L2 learning? To what extent is it possible to learn a "second language" without having a "first language"? And what happens when this L2 comes in the form of writing, as is the case for deaf writers?

Another issue relevant to language acquisition by deaf people, according to the present analysis is the characteristics of contact languages. It has been noticed that the way deaf children "reinvent" communication can be along the same lines as contact languages and can be partly explained as such a phenomenon. So this exploration in contact languages raises issues such as: What are the analogies between the deaf population and speakers/acquirers of contact languages? What are the characteristics of contact languages? Can we detect these in the language products of deaf writers? Does L2 production have contact language characteristics? If this is true then critical period is not so "critical" after all and deaf writers can escape the pathological profile and be looked at through the contact language profile. What is the relevance of contact languages, L2 learning and deafness?

This takes us to another area explored in the second chapter, which is sign linguistics. This field of research is relatively new compared to linguistics of spoken languages and consequently has a great degree of debate. The researcher's intention is to present some description of sign language features because it will be suggested that sign language is one of the sources of errors in writing a L2. The issues that the second chapter explores: critical period, contact language characteristics and sign linguistics, are necessary to the present research, particularly to the discussion. Error analysis has encountered language features that can be attributed to all the above phenomena and explain their errors.

The third area presented in relation to deafness is bilingualism, and this provides the theoretical framework of this research. Firstly in this chapter a brief introduction to

theories of bilingualism is presented and the recent perspective of deaf people as bilinguals is introduced. On these theories are based partly the arguments that underlie the need to apply bilingual education to deaf populations. However, bilingual education, now more than ever is controversial as to the academic results it can attain. If bilingual education is under question for various hearing groups, why should we expect it would be facilitative for our deaf populations? For which populations, does bilingual education seem to work and how relevant are these populations to deaf populations?

The third chapter therefore elaborates issues relevant to bilingual education such as teaching and assessing a L2. Exploring L2 teaching, provides us with ideas as to what extent L1 is involved in L2 teaching. This is important for the present research as it tries to investigate exactly that: what is the effect of using sign language in teaching written language in the bilingual educational context for deaf students? Exploring the area of assessing L2 is also directly connected to this research as it has a direct bearing on the selection and categorisation of the sample participants. The exploration of the literature regarding the assessment of a L2 yielded the criteria that were used in the methodology in order to assess the skills of deaf students in written Greek: How were the language stages decided and which criteria define each of these stages? How were the assessors trained and how were the groups separated? What are the advantages and disadvantages of one method of assessment over another and particularly the assessment used in the present study i.e. teachers' interviews in collaboration with external assessment?

The third chapter also investigates patterns of writing in bilinguals using L2. The focus of attention here is translation and direct writing, the main activities of L2 writing and the reason that are considered as tasks in the present research. Error analysis also features in this section, as this will provide evidence of the bilingual nature of deaf students' errors in their texts. It will also provide the methodology for a bilingual analysis of the texts, defining categories of errors depending on their possible source. Error analysis review deals with issues such as: When is an error an "error"? What categories of bilingual errors have been identified so far from the literature and which bilingual phenomena underlie them? Methodology and discussion draw much information on the literature review from this chapter.

The literature review converges in the fourth chapter, which concerns deaf bilinguals' written narratives. The chapter reviews issues on deaf bilingualism and deaf writing. Deaf bilingualism has posed theoretical problems. As the sign language of the deaf child does not have a written form yet there seems to be a missing link with the acquisition of the written form of the L2. While considering these parameters this chapter also focuses on the educational approaches used for deaf students. The most recent practice is sign bilingual education, whose results are still to be determined. However there is research, which may be indicative of whether sign language involvement is facilitative of writing and to what extent. This particular issue is one area of investigation of this thesis. The other area is the different bilingual skills of deaf writers in *both* their languages: sign language and written language. In order to investigate this, the chapter explores sign language assessment. Assessment of sign language relates to questions such as: Are all deaf writers the same in terms of sign language skills? If not, how do we separate the groups? What sort of materials should be used and who should make the assessment?

Recent research on deaf literacy coming from Greece is reviewed and we explain how the present research seeks to fill in some gaps and also complement the international research. By setting tasks, which reflect the basic situations of bilingual writing (translation and direct writing) and by considering the deaf writers' proficiency in both their languages, the present research hopes to capture the phenomenon in its true bilingual nature. The present research is the first to look at Greek deaf writers' profiles in a medium-scale population and consider Greek Sign Language alongside written Greek in order to define these profiles. So, in the context of the fact that bilingual education is just about to be applied for the first time in Greece to deaf students, issues that this chapter and eventually this thesis raise, are as follows:

- How can we evaluate the bilingual profile of Greek deaf students?
- What may be the consequences of using sign language material in education for literacy?
- Which aspects of writing does Greek sign language material, facilitate and which not?

- In what ways is a translation task, which directly involves sign language, different from a direct composition task?
- Do groups with different bilingual experiences also approach writing tasks differently?
- What patterns of errors occur in deaf students written Greek and do these change according to features of the stimulus material (i.e. sign language or not)?
- Are error patterns attributable to subjects' bilingual influences, i.e. can they be explained with known bilingual phenomena such as language transfer, language generalisations, contact characteristics and so forth?

The fourth chapter concludes with the research questions of the thesis and explains how they will be addressed in the research design. The research questions addressed by the present study are:

a. What is the performance of deaf students with different bilingual skills on various levels of the writing (information level, organisation of story level and grammar level)?

b. Can we influence the writing process by using different materials?

c. Do deaf writers with different levels of bilingual skill make different use of sign language input?

d. Do the patterns of errors change when we change stimulus material?

In order to answer these questions the researcher has designed an experiment: 20 deaf students in their last 2 years of high school education were separated in 3 different groups according to their levels of performance in their two languages, Greek Sign Language (GSL) and written Greek. The different bilingual groups were given two different tasks to perform: a translation from GSL to written Greek and a direct composition from pictures to written Greek. Between-groups comparisons took place to answer the first research question; within-groups comparisons took place to answer the second and an interaction between bilingual groups and tasks took place in order to answer the third question (a more detailed research design is presented in Chapter 6 where the methodology of the research is described). The first three questions are of a quantitative nature and analysis in SPSS (a statistical

computer programme for social sciences) was used. The results are presented in Chapter 7.

The fourth question is of a qualitative nature and aims to describe the patterns of errors that Greek deaf students produce in two different writing tasks. Error analysis has been applied based on a bilingual categorisation of errors and described in detail in Chapter 8. A discussion is presented and conclusions are drawn in Chapter 9.

The following schematic representation of the literature review seeks to explain the interconnection of the three areas with which the first three chapters are concerned. The overlapping parts of each comprise the content of the fourth chapter, which is the focus of this study.

WRITING

BILINGUALISM

The relevance of
oral language to
literacy skills

Error
analysis

Teaching L2
and how?
Politics of
bilingualism

Interdependence of
orality & literacy

Translation Vs.
direct writing

Literate L2
oral L1?

Writing development

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*Is sign language vs.
direct writing input
facilitative of deaf
writing and under
what bilingual
experiences?*

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of L1 & L2

Deaf writing
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for deaf education.

Sign linguistics vs. hearing language and
the relevance with contact languages

Language
acquisition for deaf
people. Critical
period issue

DEAFNESS

1 WRITING

The first chapter of this study will elaborate on the areas of writing relevant to deafness. The dependency of literacy on the conversational (oral) form and the course of writing development from oral-like texts to literate texts are relevant to the extent that sign language is basically used for conversational function. Most of the chapter will deal with the process of writing narratives, as this genre will provide the data for the present study. This exploration will provide the basis for text analysis and coding that were used to make measurements and obtain results.

1.1 Orality and literacy

Written and oral languages share the same code and purpose, which is to communicate a message. Literacy[2], though, functions differently and therefore written and oral languages demonstrate different communicational needs. Written language has filled a gap which transcendent orality could not fill: the obsession of the human psyche for displacement. Although the biological priority of oral language is undisputed, no one denies the social/cultural priority of literacy.

Historical evidence indicates that written language started as an accountancy code and was invented thousands of years after oral language was developed (Schmandt-Besserat, 1992). So although oral and written language started differently, they came to each other's aid and interacted to such a degree that the complexity of oral language can be reflected in written language. Ong (1982) explains that the relationship of the oral word to all its technological transformations (e.g. writing, print) is important because it shows that:

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[2] The term "literacy" is used synonymously with that of "written language", as language, which is able to transfer its content through time and space. Oral language can be "literate" in the sense that it can display creative workings and treat language as a piece of art. Still these oral-literate characteristics are different from written-literate characteristics. Usually they maintain a concrete form because they are tightly connected with a function such as to pass on laws and information about the tribe which is important for the tribe's historical memory and cohesion through time (Ong, 1982).

"... intelligence is relentlessly reflexive so that even the external tools that it uses to implement its workings become 'internalized', that is, part of its own reflexive process" (p. 81).

This means that even if writing is based on oral language, it eventually takes a different form, which affects the way one thinks when writing.

In literate societies, there is a tendency to examine oral-written discourse along a continuum where conversational mode is at one end and formal written mode at the other (Silliman, Jimerson, & Wilkinson, 2000). The different characteristics of the two modes have been described extensively. In brief, the most quoted are:

1. the dynamic, ephemeral behaviour of orality vs. the static, permanent object of writing,

2. the continuous production of oral language vs. the segmentation of its constituent parts in writing. These discrete symbols are the counterparts of structural characteristics of oral language but prosody and non-linguistic features have no exact equivalent in writing,

3. the dependency of oral language on context vs. the decontextualisation of written language. Oral language is multi-channelled, using all available paralinguistic means whereas written language is anchored by its code and can become more elaborated because it has to express all information via one dimension. Furthermore a natural oral conversation involves feedback and interchange among the interlocutors, unlike the production of writing, which is one-way and occurs other than for the purpose of interaction.

(Ahlgren, 1992; Ong, 1982; Paul, 1998)

In brief, written discourse has more complex grammar because it lacks a natural context and all the non-verbal communication features, which accompany written discourse. Complex syntax (e.g. subordinate clauses, passives, past and future tenses, indirect references with shifted deixis, etc.) are much more frequently used in writing. In stylistic terms, the lack of a common live context means that written discourse uses cohesion and coherence more explicitly, plus punctuation, italics and other printed special effects (Kaderavek & Sulzby, 2000; Singer, 1995). Oral discourse is always performed "live" and in the "here and now" (Marschark, Siple, Lillo-Martin, Campbell, & Everhart, 1997; Ong, 1982; Singer, 1995). Present tense,

direct reference, short and simple sentences to aid memory, etc. are mostly used in face-to-face communication. In stylistic terms, the participatory nature of discourse allows for the use of prosody, facial expression, gestures and all sorts of visual and auditory special effects. Styles can be exchanged but the text appears contrived and artificial: written language with involvement is "oral-like" (e.g. a letter to a close friend) and oral language with detachment is "written-like" (e.g. a lecture), (Roberts & Street, 1997)

Recent theories of literacy have challenged the view that print is a complicated version of oral discourse. Paul (1998) challenges this distinction with another aspect of language use, namely *the content of the information*. He argues that the form of the two modes may appear different but the information presented in an oral/conversational mode can be as complex and difficult as that captured in writing. On another note, Marchark, et. al (1997) say that the perceptual demands of literacy, especially reading, are not that great in comparison to the perceptual demands of understanding speech or sign:

> "when language is uttered and when it is perceived, it is evasive and fugitive requiring specifically tuned, fast-working mechanisms to grab its form before it disappears" (p. 129).

On the other hand, written language, because of its permanent nature, allows the reader/writer to stay permanently on a spot or to "negotiate" the meaning over time.

Perhaps future research on the semantics and pragmatics of language will reveal that the written and spoken modes share more characteristics than previously thought (Heydon, 1996).

1.2   Theories on written language development

Traditionally, theories of language were derived from written language. The source of this bias towards written language is twofold. Firstly, the high status of written and specifically literate language had led academics to believe that it represented the essence of human intellect among other creations and arts. Secondly and most

importantly, due to its physical permanence written language, unlike oral language, could be studied.

It is not surprising, therefore, that this situation was reversed in the middle of this century when technological progress made it possible to research the transcendent nature of oral language. Videos and tape recorders as well as speech processors, image processors, computers, etc., helped scientists view oral language in an equivalent way to that which written language had been. Science could now analyse the smallest bits of oral language like prosody or pitch along with situational clues like paralinguistic features, gestures, etc. Great attention was also directed to children's language development and other studies such as the language training of primates' became fashionable. For most of the last century, language research became more interested in the primary form of pure language and not in its inventions.

For this reason, writing has received relatively little recent attention and little thought has been spent on writing development and its different expressions (i.e. L2 writing, writing of populations with deviant language, etc). Only recently the importance of the era of *information literacy* has brought literacy in general –and writing in particular- into the spotlight. "Information literacy" is a new term for what is going to be the definition of literacy (see *Information literacy standards*, 2001). There are few models of writing development; these will be presented briefly in this section. There are even fewer models of L2 writing and a great gap in what happens in deaf writing.

The ability to read and write is one of the most complex skills that humans have developed. Although it seems that reading and writing are a natural extension of oral language, nevertheless they function independently. One needs only to think of the development of the two systems: literacy is acquired relatively late in childhood, sometimes with difficulty. In addition it demands metalinguistic skills, that is, the ability to dissociate the content of language from its form. By contrast, the oral form of a language is acquired in a natural way, very early in childhood, in a condensed way, and does not seem to be as directly related to cognitive abilities, as literacy seems to be.

Literacy development refers to text-based literacy skills: reading and writing. From the two dimensions of literacy, writing is interesting to investigate, because it shows what kind of processes the writers use to create a text. This allows for analysing the breakdowns or inadequacies of the process in use (Francis, 1999; Yoshinaga-Itano & Downey, 1996). Writing comprises expressive (e.g. composition) and productive (e.g. translation) language skills and both of them will be dealt with in the present study.

As stated above, there are only a few models available for describing the development of writing. The three prevailing theories will be presented briefly. The first (Breiter, 1980) explains writing development in terms of cognitive development. The other two (Kroll, 1981; Perera, 1984) have a common rationale based on how the initially merged productive language systems of speaking and writing, become gradually independent (see Silliman et al., 2000; Singer, 1995).

Breiter's model (1980): This model comprises five stages:

1. *associative writing* where the written text suits the writer rather than the reader. Thoughts are written down in the way they come to mind;

2. *performative writing* where the effort for the task is more focused on monitoring technical skills than worrying about the coherence of the text;

3. *communicative writing* where an attempt is made to adjust the content of the text produced to the reader's knowledge about the subject;

4. *unified writing* where the writer is aware not only of the existence of an audience but also "transfers" himself from a writer's to a reader's perspective. This allows him to reflect on his own text and

5. *epistemic writing* where the written text is used for developing thoughts and not just for expressing them.

Kroll's model (1981): In this model the child's first acquaintance with writing happens in the phase of preparation where most of the effort is consumed in learning the technical aspects of handwriting. Speaking and writing are separate during this phase (nursery age). The second phase is that of consolidation where speech is written down and the properties of the one mode influence skills in the other (age 6-7

years). Differentiation of written and spoken language is the third phase. That is when writing becomes literate in form and style and decontextualised in nature while speaking remains situational and context dependent. Children understand that writing and speech are two different codes where writing lacks the prosodic and paralinguistic characteristics of speech and has therefore the commitment of rendering "what is meant" instead of "what is said" (age 9-10 years). The last phase of Kroll's model is integration where styles and structures from each mode can be interchanged creatively.

Perera's model (1984): In this model there is a continuum in writing development. Development proceeds from using structures of speech in writing (e.g. slang) towards using structures more commonly found in writing (e.g. passives). The degree of the text's "self-sufficiency" shows the stage of development.

In all of the above models there is a common ground in that, gradually, written texts become independent of speech and decontextualised in nature. Speech, or the conversational context of communication, has helped to foster the knowledge that writing is just another means of expression and communication. When a child is exposed to both the conversational form and the written form of the same language s/he gradually comes to understand that the rules underlying the two systems are not the same. Writing can be more interpretive, less spontaneous and is not constrained by the time pressure of the production of a message, which is not the case for speech or signing. The implication for deaf students' writing can be the following: since signing lacks literacy and the conversational form of the language they learn to write in is blocked, their texts are less likely to take on literate features and will remain close to the conversational form of their best manageable language. In that sense, deaf people when developing literacy skills may have similar experiences to other oral cultures.

Cohesion differences and decontextualisation are perhaps the features which best sum up the different characteristics of speech and writing make discourse in each "feel" different. Indeed research on literacy development has proved that as children develop, their writing becomes more literate and decontextualised through the use of low-frequency words, use of cohesion ties, etc. (Singer, 1995).

Other research based on the premise that oral and written languages are distinct but closely related, has shown that children as young as preschool, in literate tasks such as emergent storybook reading, show more sensitivity to the characteristics of written language than to oral narratives (Kaderavek & Sulzby, 2000). More precisely preschool children tested in oral narratives and literate narratives (that is, retelling of a familiar storybook) used more characteristics of written language in the storybook task than in the oral one. This is indicative that not only are the written and spoken mode different, but also that very young children are sensitive to these differences.

This sensitivity naturally emerges when children's attention is directed to genre differences, which is not a natural activity but a deliberate one (i.e. the adult prompts the child "to come and read a story from a book"). Even when the child is too young to read, s/he is able to engage in literate-introductory activities such as holding the book wide open, turning pages from left to right, eye gaze moving from left to right and top to bottom. Emergent literacy has been claimed to be the precursor of literacy development and its presence or absence can affect academic success (Kaderavek & Sulzby, 2000). However emergent literacy may also be another source of deaf people's literacy problem. Since most families of deaf individuals are hearing they cannot provide a shared context meaningful to the child. On the other hand, even in deaf families, much will depend on the level of parents' literacy skills.

1.3 Written discourse: the case of narratives

Discourse in general means language in use. There are a number of forms of discourse: media discourse, literary discourse, everyday discourse, academic discourse, are just a few. Almost all are characterised from distinct similarities in language formation sometimes to the point of a ritual (e.g. "dear …" marks the beginning of letters, "once upon a time…" is only found in narratives, and so on).

Genres of discourse refer to the variety of content. Differences in genres promote differentiation in language use (Kamberelis, 1999). For example, diaries and legal

documents differ in that they are produced and consumed in different contexts: the first is individualistic and the second is collective. "Written language" therefore is not the issue but rather the context in which the text is generated. Kamberelis explains that current theories on writing draw attention not to writing but to the people, institutions, rhetorical situations and social contexts from which the texts were generated. Literacy learning therefore comes to involve analysing the regularities and conventionalities of genres as well as their violations.

Different genres include texts of narratives, expository texts, argumentative texts, scientific reports, poetry etc. The present research investigates the genre of narrative and an analysis of its discourse will be presented.

1.3.1 Why study narratives?

Recent research on writing development has concentrated on the analysis of narratives as an alternative to the analysis of isolated sentences (Shrubshall, 1997; Silliman et al., 2000). An analysis of narratives can be qualitative, as it can reveal the tactics children of different ages use to plan the theme (what do I want to talk about? what message do I want to convey?), organise the pieces of a story (events in chronological order, flash-backs, etc.), produce a meaningful narrative (connecting the words into sentences and sentences into text) and eventually to reflect on the text as a "reader" and repair the faults (Singer, 1995). Narrative ability seems also to be, a reliable predictor of school success (Kaderavek & Sulzby, 2000; Speece, Roth, Cooper, & de la Paz, 1999).

However there are a number of reasons why narrative is a preferable genre to investigate. The most important is its ecological validity in the evaluation of language and cognitive skills. The ecological validity is obvious if one thinks that narratives occur naturally in various settings. They are an important part of everyday life as well as part of all cultures' creations i.e. narratives as creations and behaviours seem to be universal (Fey, Catts, & Proctor-Williams, 2001).

Another reason for investigating narrative ability is that it is part of academic practice. Narrative production can provide assessment for language form, content and use. Narratives can therefore provide valuable information to indicate which areas need support because of two things. First, their developmental course: children display a sequence of story development matched to their cognitive development (Grove & Tucker, 2002). A narrative assessment can thus provide us with information on where a student should be according to his development. Second their holistic value: narratives can reveal deficiencies in both language comprehension and language production such as language form and content in unification, cohesion and coherence.

Narratives can even provide the material of support for possible academic disadvantages and be used as a teaching tool because of:

1. Their direct connection to experience: children understand that narratives are like predictable sequences of events that occur in real life. This makes narratives salient which further facilitates their acquisition.

2. Their non-academic nature: expanding from traditional folk stories, fairy tales and simple scripts for children to science fiction for adults and most importantly to the "banal narratives of every day conversation". Labov (1997) explains that "narratives are privileged forms of discourse which play a central role in almost every conversation". He goes on to claim that "narrative is the prototype, perhaps the only example of a well formed speech event with a beginning, a middle, and an end".

This "prototypical" nature of the narrative can also be inferred from comparative studies of writing genres in young writers such as that of Kamberelis (1999). He studied the written narratives, reports and poems of fifty-four kindergarten, first and second graders. His findings revealed young writers' sensitivity to genre production. More specifically he found that the children had greater knowledge of narrative structure than any of the other genres. Also there was evidence that written reports and poems developed as hybrids based on narratives as primary forms and that these hybrids occurred in reports and poems rather than narratives, meaning that children overgeneralised narratives but not reports and poems.

Another indication of narratives' non-academic nature is that unlike other academic genres such as scientific reports or argumentative texts, narratives are not preoccupied with credibility. Narratives are there to report something –not necessarily truthful or important- in a structured way. We will later see that this "way" is temporal/linear sequenced and is a structure inherent to narratives.

All the above provide a rationale for the use of the genre of narratives as a teaching tool as well as a supportive tool to academic skills, as most children come to school with a wide experience of narrative structure. Narrative genre can introduce the idea of structure in other genres that follow academically. Also, as narratives are a mode of representing experience they can become an excellent tool to support social identity and interaction.

Research has also investigated the role of narratives as an alternative and augmentative means of communication in children with learning difficulties. Grove (2002) used narrative training with a group of six learning disabled students in order to develop their skills of telling and listening to stories as well as to develop their social skills. She reported that after the training they displayed better attention and listening and made more proper use of language. Their social skills were also facilitated as a result of participating in retelling groups. Nevertheless, they found it hard to acknowledge the audience, express evaluations for the story and most importantly, tell stories independently, which is important for writing. On another occasion, Grove & Tucker's (2002) research of intellectually impaired children's narratives in manual signs note that "sharing storytelling may provide effective models of what information needs to be included and ways of engaging and maintaining listener's attention" (p. 32).

Teachers and educators do not usually include writing narratives as augmentative material to academic failure. This may be because little research has been done on what writing narratives, can offer as a support tool. However, the little research that has been carried out indicates the facilitative effects of incorporating written narratives as such a material. For example, Silliman et al.'s (2000) case study

investigation into the persuasive text of a 4th grader, presents a list of reasons why writing narratives is a useful tool:

a. Writing requires but also enhances phonological awareness, which underlies literacy success.

b. Training in writing influences discourse, semantic and syntactic knowledge, just as training in spelling leads to better phonemic awareness and training in sight word recognition improves reading.

c. Students can develop their own voices and styles of writing.

d. Writing can be used to develop the awareness of an audience, which needs to be guided towards the meaning of the text.

Also, Singer's study (1995) on kindergarten children's developmental route in cohesion of their text, suggested that writing can be used as a tool along with oral language and reading activities. This can be done in order to familiarise students with the specifics of oral language (high frequency structures) as opposed to printed language (low frequency structures) and thus promote print literacy. In brief, narrative discourse can bridge orality and literacy and make the transfer smooth and natural.

1.3.2 Narrative analysis

Narratives as a genre have been investigated for a long time and by different disciplines. Their presence in the lives of all known cultures and their different functions, from every day interaction to literature have attracted the attention of psychologists, anthropologists, linguists, and educators. Narratives are generally believed to have a structure, which can be applied cross-culturally as well as developmentally. The exact higher-order structure along with the terminology is yet to be agreed. Also the degree that narratives are culturally determined has been challenged. The prevailing theories of narrative analysis are now presented.

First, narratives are considered mental representations of schemas. Schemas (or scripts) are familiar events that are derived from prior experience and knowledge of the world. These are present from the beginning and throughout a person's life, and

are highly patterned. For example if somebody says that s/he went to a party, the "script" will predict that this person experienced a situation where people gather together, eat food or drink, listen to music etc. People also draw much information from schemas such as the assumption of having fun in a party or the assumption of experiencing pain after a visit to the dentist. Schemas therefore -and by extension narratives- have a psychological and cognitive perspective, which seeks to explain the world by organising our knowledge, predicting and helping memory. They point to probabilities and they exclude others (Chau-Hu, 2000; Eaton, Collis, & Lewis, 1999).

This is probably as far as the cross-cultural commonalty of schemas goes. Experience behind them, is influenced by cultural differences and people's routines so the information is culturally specific. Nevertheless, narratives can be considered to have a common psychological perspective and structure (DiPardo, 1989; Kamberelis, 1999). The description of this structure comprises the macrostructure analysis and different patterns have emerged from various scholars, which will be presented below.

1.3.2.1   The content of narratives

Narratives are well-organised episodic structures. This means that narratives are seen as the temporal sequence of the protagonists' behaviour towards goals. Narratives unfold logically and, to a great extent, predictably. Stein & Glenn's (1979) *story grammar structure* best captures the notion of narratives as sequences of information (Schneider, 1996; Stein & Glenn, 1979), containing the following elements:

 a. a setting, where the time and place of events and the protagonists with their behaviours are introduced

 b. an initiating event, where a problematic situation arises for the story or the protagonist

 c. the internal response, of the protagonist towards the initiating event

 d. an attempt, which describes the protagonist's actions to solve the problem

 e. a consequence in which the protagonist's attempt comes to an end

f. <u>a reaction</u> which is the response of the protagonist to the consequence

The above elements are connected to each other with various relations such as conditional, causal or temporal and there is a developmental embedding of the one element into the other (i.e. children gradually produce stories with all these elements linked together efficiently). It must be highlighted here that Stein & Glen have also accounted for another two elements, namely <u>judgements</u> and <u>appendages</u>. Judgments are statements of the narrator's comments about the events and appendages are summaries of introductions or conclusions. This structure – the *story grammar* structure- and its terminology is one of the most frequently quoted in narrative theories along with Labov's high point analysis of narratives (Peterson & McCabe, 1983; Stein & Glenn, 1979).

In Labov's *high point analysis*, the narratives operate on two levels: that of reference (what happened) and that of evaluation (attitude of the narrator about the events). Narratives can have the following elements:

a. an *abstract* which summarises the events of the narration

b. an *orientation* which sets the time place and characters of the stories as well as their initial behaviour

c. *complicating actions* which is the sequence of the actions the characters are involved with and includes the high point of the story

d. *evaluation* which is comments, highlights and elaborations on why specific events are important to the story

e. *resolution* the events which follow the high point and resolve the crisis

f. *coda* which sums up the narrative and returns it to the time of speaking (Labov, 1997)

The abstract and the codas are not compulsory in a narrative. Also the evaluation does not occur at a specific point in narration but can be present during all elements. It usually accumulates around the high points of the story, which are the points where the action accumulates.

From the above, we can see that the two approaches are similar in many of their elements. The difference is the importance attached to the evaluation by high point analysis and the importance attached to generic information by story grammar. This difference could be due to the different epistemic backgrounds of their proponents.

Story grammar has a more cognitive basis and is usually applied to fictional stories. High point analysis has a sociolinguistic basis and is usually more appropriate for narratives of personal experience (Grove, 2002). However, both deal with the same data (the first in a more decontextualised, academic context; the second in a contextualised, raw material context) and are more concerned with the content of the story (i.e. the type of information and the order this comes) rather than the form of expression.

1.3.2.2 The organisation of narrative content

A third prevailing theory of narrative analysis differs in the sense that it attempts to account for the relationship of form to content. This theory is known as *dependency analysis* and examines stories by focussing on their grammatical form. Dependency analysis is connected to generative grammar, where surface forms are linked to deep structures and various transformations interrelate these structures (Peterson & McCabe, 1983).

The specifics of this analysis are beyond the scope of the present thesis, but the predominant feature of dependency analysis is that it views discourse as a hierarchy. It first detects the most important proposition, which organises the text and then determines whether the prepositions around it are subordinated or co-ordinated. The degree of subordination or co-ordination is important because it is assumed that the more subordination and the deeper the hierarchy, the more sophisticated is the story. Peterson & McCabe (1983) have analysed extensively the rationale behind this theory and the following illustrative example comes from them (page 11):

> "There is an old hermit named Thomas, who follows Thoreau in believing that most luxuries are not indispensable and in fact are even hindrances to the elevation of mankind".

This is broken down as:

1. There is a hermit

    1.1. old (hermit)

    1.2. (hermit) named Thomas,

1.3 (hermit) who follows Thoreau in believing that most luxuries are (two things)

    1.3.1 not indispensable and

    1.3.2 are hindrances to the elevation of mankind

        1.3.2.1 in fact

        1.3.2. 2 even

The hierarchy could be shown in tree diagrams as follows:

Figure 1-1: Example of dependency analysis
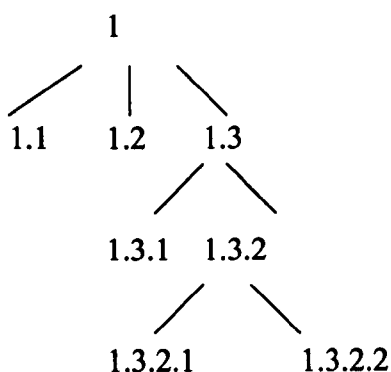
The idea of the text being organised in hierarchically arranged propositions heavily dependent on their syntax as well as their content, has been entertained by a number of scholars (Langer, 1986; Mann & Thompson, 1988; O'Donnell, 2002; Torrance, 2002). Rhetorical structure theory (RST) explores the deep text generation process, and in order to identify semantic categories, relies on grammatical clues. Long lists of semantic categories have been developed to determine the deep structures. For example Mann & Thompson's (1988) as well as O'Donnell's (2002) include the following categories:

Antithesis	Condition	Event-time	Description
Background	Conjunction	Joint	Purpose
Cause	Co-occurrence	Summary	Result
Comment	Elaboration	Spatial location	Sequence
Comparison	Evaluation	Manner	

Examples of text analysis based on RST taken from O'Donnell's RSTTool, a computer program designed for text processing (O'Donnell, 2002), are indicative of the *semantic* orientation of the propositions (Figure 1-2) and also of the *grammatical* influence on content (Figure 1-3):

Figure 1-2: Rhetorical structure theory: example of text analysis based on the semantic content of propositions

```
                              1-4
        |                      |                        |
   Orientation               Body                   Punchline
   Two old men                2-3                   Two minutes go
 sittling talking in a     Sequence                  by, and he says
 retirement home.     _____/_____              "Isn't anyone
                  One asks, "How's  The other replies  going to get that
                  your memory?"     "No problem at        door!"
                                    all, touch wood",
                                         as he
                                      knocks on the
                                       oak table.
```
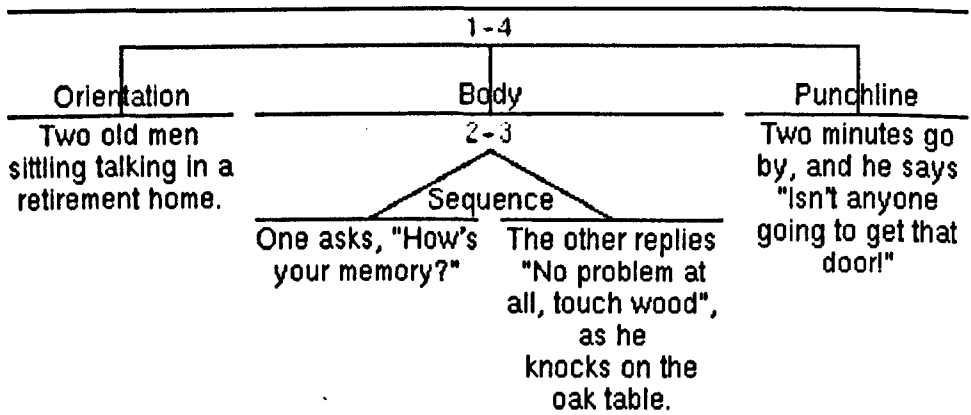
Figure 1-3: Rhetorical structure theory: example of text analysis based on the semantic content of propositions as revealed from grammar

```
                              3-6
                          Conjunction
                   3-4                    5-6
              Cooccurrence                  Cause
      When he took it   it was as heavy  and he was going   because he
           up              as lead       to throw it away,  thought a trick
                                                            had been played
                                                              upon him.
```
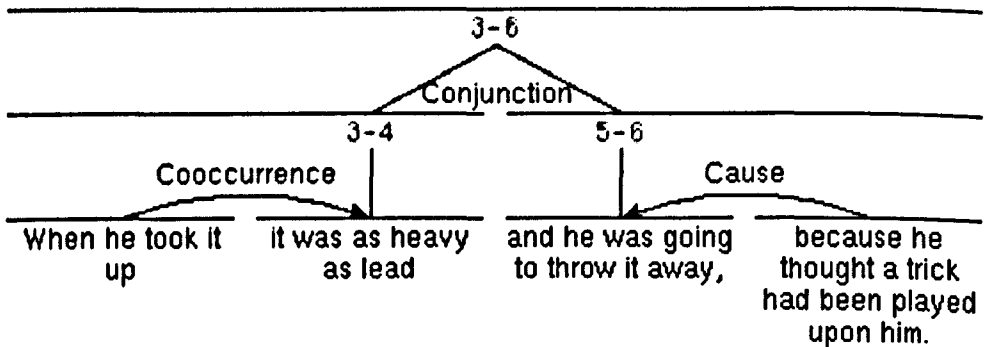
A more applied text organisation analysis comes from Langer (1986). Her approach –on which the present research has relied- is a combination of dependency analysis and RST and has been applied to children's writings. Her intention was to capture the "differences in language use [which] are usually accompanied by differences in the range of language structures" (p. 35). Langer has developed tree diagrams, which capture the semantic relationships between propositions or *content units*, as she calls them. The tree diagrams are basically the rhetorical structure of the story. Again, we witness a reliance on grammar in order to account for "content units".

In summary, the trees are organised in levels of content hierarchy. The top-most level is the rhetorical pattern of a story, which is always a *Sequence* (i.e. episodes or events ordered by temporal sequence). The whole narrative then is subordinated under the *Sequence* and can undergo various levels of elaboration (Level 2, Level 3, etc.). At the lower levels there is a list of rhetorical predicates that can appear:

1. *Events* (e.g. an action taking place)
2. *Descriptions* (e.g. elaborations of manner, attribution, setting)
3. *Evaluations* (e.g. narrator's opinion or comment)
4. *Adversatives* (e.g. two alternatives one more favoured than the other)
5. *Explanations* (e.g. causal antecedents which explain the main idea and require explicit causal marker)
6. *Evidence* (e.g. support of an argument)
7. *Collection* (i.e. a list of identical events)
8. *Cause* and *Consequence* (i.e. the cause and the effect of an action),
9. various kinds of *Responses* (i.e. Question-Answer, Remark-Reply and in general dialogues, monologues, and inner thoughts).

The above is similar to the RST mentioned previously. The difference is that Langer's list is adapted to simple written products while RST accounts for elaborated texts.

An example of how a narrative is organised via tree diagrams is the following story written by a child, aged 8 years (see Langer, 1986, p. 55) [3]:

---

[3] Spelling of story is that of the original text

"*1* One day a little girl went to school. *2* When she got ther she was scared. *3* She did not know what to do. *4* Then she went to her desk. *5* She was in first grade. *6* Then she felt like crying. *7* But then she did not. *8* At reacse there were lots of kids. *9* A little girl came up to her. *10* The little girl sead wath is your name? *11* "My name is Carrie. *12* What is your name. *13* Marry. *14* Marry will you play with me? *15* Yes. *16* Thank you. *17* So they start playing. *18* Carrie had lots of fun. The end."

The tree diagram of the above story is shown in Figure 1-4:

Figure 1-4: Tree diagram of a story according to Langer (1986)

Level I — Sequence*

Level II — Ev.Ev. Ev.Ev. Ev.Ev.Ev... Resp.Resp Resp. Ev.
1 2 4 6 7 8 9   17

Level III — Desc Desc   Q A Q A Q A Desc
3 5   10 11 12 13 14 15 18

Level IV — Resp

Level V — Rem Repl
16
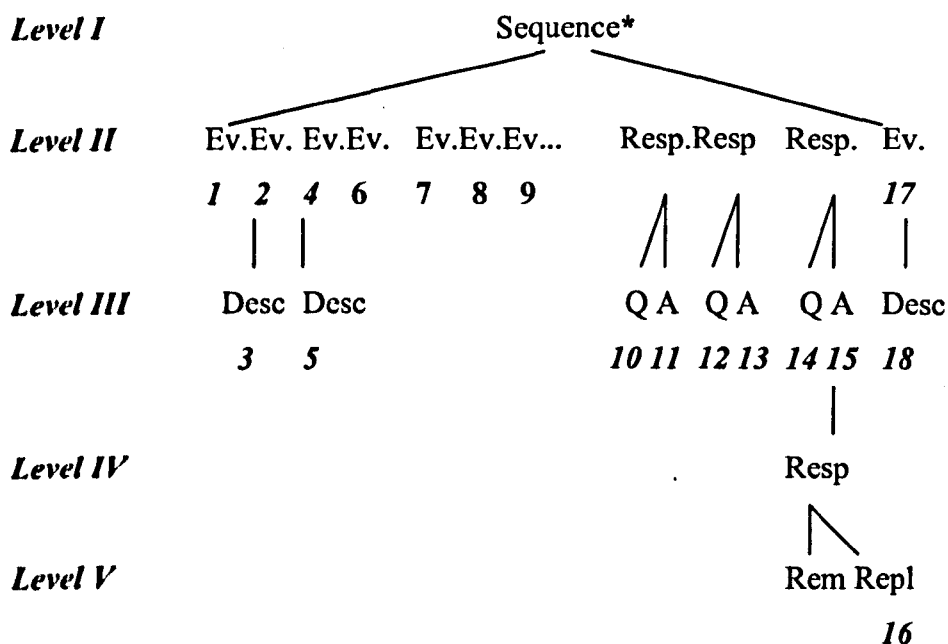
* (Ev. = event, Desc. = description, Resp. = response, Q. A. = question & answer, Rem. = remark)

The advantage of the tree diagrams is, according to Langer:

"...[that they] highlight a number of aspects of children's emerging control over structure. In comparing one tree diagram to another, the overall depth of the tree is a measure of the amount of rhetorical structure imposed upon the content. For a text of a given length, the deeper the structure the more tightly focused it is likely to be. Another aspect of structure is captured by looking at the level that contains the greatest number of nodes. The deeper this level, the

more tightly the body of the text is likely to be framed by superordinate information. Alternatively one can examine the degree of superordination by looking at individual nodes, and calculating how many are more deeply linked (superordinate to two or more lower-level nodes), shallowly linked (superordinate to a single node), or unlinked" (p. 38).

After reviewing these theories of narrative analysis we can see that the boundaries between content and form are intertwined. Therefore a study on narratives should not only account for the surface text but also for the thoughts and process that took place. All the above point to two major issues in narrative analysis: the content/information of the story and the way this information is structured.

1.3.2.3 Detecting and measuring meaning via grammar: coherence & cohesion and text evaluation

Although the distinction between content and language form exists, it is a blurred one. Sometimes the grammatical features of a narrative are used to determine its content, propositions and also its structure. This is most evident in the coherence & cohesion theories but also in Labov's evaluation element (see 1.3.2.1), which differentiates the content of a story into two different types: descriptions and evaluations.

Cohesion and coherence are examined with multiple features. Grabe (quoted by Chiang, 1999) explains these terms as follows:

> "*Cohesion* is the means available in the surface forms of the text, to signal relations that hold between sentences or clausal units in the text, it is the surface manifestation of the underlying relations that bind a text. *Coherence*, as a theoretical construct in text structure, refers to the underlying relations that hold between assertions (or propositions) and how they contribute to the overall discourse theme (or macro-structure). Much as cohesion represents the formal features of text beyond the limits of the sentence, so also does

coherence represent the semantic relations of text beyond the level of the sentence" (p.223).

Coherence is almost identical to rhetorical structure theories as both refer to the semantic continuity of the text. Coherence can be achieved via *verbal* means (i.e. cohesion) and *non-verbal* means (i.e. inferences about the recipient's existing knowledge). Verbal means can be:

a. repetition of key words or use of synonyms,

b. reference by proper use of pronouns,

c. use of transitional words or connectives of semantic categories such as addition (and, too, again), comparison (but, yet, although), proof (because, obviously, evidently), deixis (later, over, under), sequence (next, then),

d. use of sentence devices such as parallelism (iconicity, chiasmus) and ellipsis.

(Abadiano, 1997; Chiang, 1999; Halliday & Hasan, 1976; Kamberelis, 1999). Non-verbal means refers to the common sense on which the narrator can draw assumptions of different degrees. This common sense is plainly the scripts or schemas activated and the prior knowledge about the world (see 1.3.2).

Cohesion, on the other hand, consists of features that tie sentences together and link different sentences to each other. These features vary among the theorists in terminology but not in reality. For example according to Halliday and Hasan (1976), cohesion involves four main areas: *reference, ellipsis, conjunction* and *lexical cohesion*. For Singer (1995), cohesion could be analysed through the study of *reference* use, *substitution* and *conjunction* forms. Chiang (1999) elaborates cohesion as

- *expressions of equivalence* (e.g. repetition of vocabulary, paraphrase),

- *proper use of deixis,*

- *use of junction words* for interconnecting and intraconnecting sentences, e.g. coordinating conjunctions (and, or, but), subordinating conjunctions (that, when, because, because of),

- *punctuation use,* which helps sentences retain a degree of compactness and efficiency and functions to separate ideas and dramatise the plot (e.g. question marks, exclamation marks, fullstops, commas)

As we can see, coherence and cohesion are strongly connected and even overlap. However, they are always studied in parallel, simply because there is some degree of independence: one can have coherence without cohesion and vice versa. One actually could have all combinations. For example:

1. Coherent – Cohesive

Mary is looking for a new flat. *She does so because her* wedding will be in a month.

2. Coherent – Incohesive

Mary is looking for a new flat. The wedding will be in a month.

3. Incoherent – Cohesive

Mary is looking for a new flat. *She* was the biggest ship that has ever travelled the seas.

4. Incoherent – Incohesive

Mary is looking for a new flat. The capital of Greece is Athens.

We acknowledge that coherence is necessary to make meaning and cohesion is not (only 1 and 2 from the above are acceptable). When cohesion is missing, the text relies on strong assumptions about the recipient's knowledge, which is only possible when the two interlocutors have a shared context. Writing is usually not a shared context and the writer should make the least possible assumptions about the reader's knowledge.

Another perspective of text cohesion, which adds to the above, is found in Silliman, et.al. (2000) and Kaderavek & Sulzby (2000). The first author, comments on the importance of *audience differentiation* and *syntactic differentiation.* Audience differentiation is a mechanism expressing the private state of the characters in a story: their wills, opinions, attitudes, and the capability of the writer to engage the reader in the different character perspectives. The construction of dialogue in a story or the expression of an internal monologue -that is, character voices and character thoughts- is the demonstration of such a mechanism. Syntactic differentiation refers to handling coordinating and subordinating ideas of the text. This mechanism is

heavily reliant upon the use of connectives, which, according to the authors, contribute to the cohesion of meaning. Connectives link semantic information across the text. The way they are used is instrumental to the interpretation of the text. Kaderavek & Sulzby (2000) also discuss character identification through the use of pronouns, the verb tense system, the use of reported speech with dialogue carriers and again the use of connectors.

Labov's narrative analysis, which is based on distinguishing the narrative information into *facts and evaluations,* can also be accessed via grammar. Eaton, Collis & Lewis (1999) investigated evaluations in children's narratives according to high point analysis. They used grammatical cues to justify the evaluations. Evaluative clauses were those, which contained reference to emotion, either the narrator's, or the characters' (e.g. "happy", "sad"), explanations or comments (e.g. "because", "so", "ought"), uncertainty (e.g. "might", "probably"), and animation (e.g. characters' reported speech). These clauses contrasted from those that described facts. Peterson & McCabe (1983), analysing Labov's high point analysis, presented a clear distinction between action and evaluation, which is *"statements or words* that tell the reader what to think about a person, place, thing, event or the entire experience" (p. 32) [my italics].

As a last note on grammar and the semantic content of narratives we should highlight the fact that oral and written narratives have different ways of manifesting their plot coherently and can be equally complicated, each for different reasons. Oral narratives, because of their transient nature, have to use mechanisms, which aid memory, one of which is repetition or paraphrase. Another mechanism is starting from the middle of the events and expanding in circles (known as "in medias res"). The "topic marker" best describes this mechanism either at a sentence or narrative level (Ong, 1982). Written narratives, on the other hand, offer the "going backwards and forwards" mechanism because of the physical presence of the text. Stories can be narrated in a linear order without the fear that the audience will lose track of the events.

The above issue is connected with deaf literacy development, as to how the user of a language without literacy masters the mechanisms of narration in writing. As already

described, in writing development a shift from oral to literate language takes place. It is interesting to investigate how this shift has developed in deaf writers.

1.3.2.4 Segmenting narratives and measuring narrative complexity

In order to understand the powers that link the story together, narratives can be segmented into more basic units. Researchers have proposed different kinds of text segmentation. This is not because of a disagreement on theoretical grounds. Segmentation depends on what each researcher wants to look at. For example, different rules apply for oral narratives where pause and intonation are used, whereas in written narratives punctuation is used. These rules do not come without difficulties: in oral narratives, stories can become too long, complex and utterances overlap. On the other hand in writing, punctuation can be difficult to manipulate correctly, especially for young children, and is not always indicative of the intended segmentation.

Two of the most typical ways of segmenting a narrative, which have been more or less established in research are: C-Units and T-Units. The first stands for Communication Unit and the second for Terminable Unit and both are similar techniques of segmentation (Scott, 1988). C-Unit segmentation is more popular with segmenting oral stories and T-Unit is more popular with written ones. T-Unit segmentation has been adopted more broadly although only as a convention. Both are defined as *the main clause plus all subordinate to it clauses or non-clausal structures* (Ferris & Politzer, 1981; Scott, 1988; Silliman et al., 2000).

However even if the T-Unit or C-Unit are considered to be the minimal segments of a meaningful piece of language or thought, it is the *clause* that is the building block of this piece. The clause is defined primarily by its verb and the explicit or implicit subject (see *Clauses: the essential building-blocks*, n.d.). The inter-clausal and intra-clausal bonds help teachers and linguists determine language development and complexity and many indexes based on these grammatical features have been

standardised and used as criteria for language skills (Kamberelis, 1999; Polio, 2001; Scott, 1988).

Subordination and coordination are the most frequent indexes used to measure language complexity, along with other measurements such as:

Lexical Diversity

> number of words in text (length of text)
>
> number of adjectives
>
> free modifiers
>
> sentence adverbials

Grammatical Complexity

> mean length per T-Unit (MLTU) which is the equivalent of the MLU (mean length per utterance, a classic measurement of children's language)
>
> number of words per T-units
>
> number of words per clause
>
> subordination index (main and embedded clauses especially relative clauses)
>
> coordination index (main clauses conjoined especially clauses other than "and")
>
> passives
>
> stylistic word order variation
>
> number of clauses per T-unit
>
> a range of tense and modal usage

Cohesion Analysis

> use of cohesive markers (categorised by type)
>
> complete ties versus incomplete or erroneous ties

(Grabe & Kaplan, 1996; Polio, 2001).

It must be noted here that, despite the numerous measurements, there is no real evidence that "syntactic complexity" necessarily defines a good piece of writing. Even Halliday & Hasan (1976: p. 229) admit that "it is the underlying semantic relation that actually has the cohesive power" rather than the particular grammatical devices employed.

Regarding clauses, there are two situations where the segmentation proposed is not based on the classic idea of units and clauses. Firstly, Labov (see Peterson & McCabe, 1983) has talked about *restricted clauses* and *free clauses* that make up a narrative. The first define the timeline of the story and come in strict order and the second are not time-dependent. This approach is more about the content of the clauses and depends on the temporal sequences of events. Nevertheless, grammar is also affected as, for example, subordinate clauses cannot count as narrative clauses because they do not affect the timeline of the events.

Secondly the building blocks of narratives according to dependency analysis, are the "propositions" as opposed to the clauses, which again are more dependent on semantics. These are not dependent on a verb but on *the verb of the most dominant proposition*. For example, the phrase "We went to the Aegean and Ionian islands" breaks down into the following propositions:

"We went to the Aegean and Ionian islands" →　　1. We went to (two things)

　　　　　　　　　　　　　　　　　　　　　→ 1.1　The Aegean islands

　　　　　　　　　　　　　　　　　　　　　→ 1.2. The Ionian islands.

The type of segmentation and all the above language measurements assume a well-formed, well-organised text with relatively good language use. What happens, though, when the language used is atypical? Atypical language[4] is not an unusual situation: young children's talk, bilingual people's language, language of people with learning difficulties, are forms of language frequently studied. Although a method of segmentation of atypical language needs to be developed and agreed upon by language researchers, it seems that the more atypical the language, the smaller the segments should be in order to analyse it. Sometimes the segments are even smaller than a clause, reduced to a single noun which describes a situation or an implicit verb (for an example of deviant language segmentation, see Grove & Tucker, 2002). The methodological problems and gaps that atypical language investigation faces are relevant to the present research, which considers the written language of deaf children whose language is atypical.

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[4] Here "atypical language" is used in absolute terms as non-standard, not-well-formed language production as opposed to well-formed language (i.e. the language of a monolingual adult without learning difficulties). Atypical language can be very typical in their reduced relative contexts, i.e. young children's talk is typical of young children.

1.4 Summary of "Writing"

This chapter has explored various aspects of writing that are relevant to this study. Firstly, the relationship of orality and literacy was addressed because sign languages lack a written form. We return to this fact in the discussion of results as it may explain to a certain extent some of the language products of deaf writers. The developmental and cognitive process of writing was discussed to show how different written language is from oral/signed languages in their communicative mode. Written language may depend on spoken language, however the link is not a direct one and the production process may be qualitatively different. The central parts of the chapter deal with the genre of narratives. Content/discourse analysis theories, organisation theories, grammar and segmentation techniques were explored. These provide the crucial context for methods of analysing texts.

2 DEAFNESS AND LANGUAGE

As most deaf children come from hearing families, deafness is connected with prevailing theories on critical period (due to late acquisition) and contact languages[5] (due to rediscovery of language). This chapter will review the literature on these related areas and their effect on the language patterns of deaf people. The chapter will also explore sign language vs. spoken language typology. This is important because clarifications on what is modality specific and what is not, need to be made. The chapter will also explore sign language vs. spoken language typology for the same reason. Also, sign linguistics is essential for the error analysis of the written narratives that will follow. Language transfer causes many of the errors, and description of sign linguistics may show how these errors may look like in writing.

2.1 Critical period debate

The critical period theory suggests that there is a biologically determined time for an organism to achieve a function. This means that a critical period should express specific characteristics such as it should begin and end abruptly, research should agree on the exact time of the onset and end, and the function in discussion either cannot appear after the critical period or can appear having quantitatively and qualitatively different mechanisms.

Critical period is very popular in the biological sciences where there are robust results from research which support its existence (e.g. on vision of animals see Hubel & Wiesel, 1970; and on vision of humans see Sacks, 1995). It is however important to note that vision therapy after the critical period has been reported to result in considerable improvement, and therefore considered as the time of *maximum* (and not critical) neurological plasticity (Cooper, 2003). For this reason, the critical period

---

[5] Creoles & pidgins are also known in literature as "contact languages". These terms will be used interchangeably during the analysis.

theory is now often referred to as "sensitive period", "window of opportunity" or "optimal period" (Bailey, Bruer, Symons, & Lichtman, 2001). Also a number of "critical periods" for a given behavior is now accepted instead of one.

Even if the name now varies, the issue is still under intense debate when it comes to *language acquisition*. The application of critical period theory to language acquisition is more complicated than in biological sciences. The concept of a critical period is relevant to L1 and L2 acquisition fields with L2 being the most controversial. Both types of language acquisition are relevant to the discussion of this study as deaf people's main area of disadvantage is exactly this: a delayed L1 that may –or may not- develop an L2 profile.

As far as L1 is concerned, critical period makes a strong case for the poor language abilities of 95% of the deaf population. In the worse scenario of the theory, the majority of deaf children are producing dysfunctional language because they missed the biologically determined time for L1 acquisition. In the best scenario of the theory, they manage to acquire language with the process and the linguistic characteristics of a L2.

This argument (i.e. that deaf language acquisition resembles L2 process and production) can also be boosted as deaf people's language acquisition displays similarities to contact languages. Contact language characteristics and processes have also been described as a L2 phenomenon. More specifically it has been claimed that all processes of language acquisition (whether these are L1, L2, delayed L1, language re-invention, etc) are underlined by *procedural universals*, which are psychological laws common to all processes. This means deaf children's atypical language production may be better explained as L2 phenomenon via contact language procedurals rather than as a critical period result.

On the other hand, contact languages with regard to deaf language acquisition also raise the argument of constitutive universals. *Constitutive* universals concern the typology of the resulting language and are relevant to the description of sign languages in general as well as the typology of the written language that deaf people produce. In a few words, critical period theories for L1 & L2 as well as contact

language exploration is considered important to this thesis as a great deal of the errors found in the written narratives, are explained in these terms.

As far as evidence of a critical period for L1 acquisition is concerned this came primarily from three areas: aphasic children who were able to recover their language abilities -unlike aphasic adults- (Lenneberg, 1967), extreme cases of language deprivation (see: *A list of feral children*, n.d.) and deaf children of hearing parents. The latter has been cited as the closest experiment of nature (or society), of individuals with intact intellect, growing up without a meaningful language input (Pinker, 1994). Although there are considerations for each of the above arguments, in general the existence of a critical period for L1 acquisition is accepted.

Providing a L1 is in place, the critical period for L2 has less of a biological basis and more of a social and educational one. A critical period for L2 implies that an additional language should be learned within a certain period to assure proficiency. There is a rich literature on L2 acquisition and critical period and most of the evidence comes from: comparative research on processing L1 and L2; research on populations of immigrants of varying length of residency in the host country; and research on brain activity and lateralisation on bilinguals.

These areas are highly debatable and there is research supporting all possible scenarios. Although in-depth exploration of each area is outside the scope of the present review, of relevance may be research on brain activity and lateralisation. It has been suggested that lateralisation ends around 5 years of age, which coincides with the end of acquiring native pronunciation, but syntax and comprehension are still developing beyond that age (Birdsong, 1999; Johnson & Newport, 1989). This raises the idea that there are many critical periods for language acquisition either L1 or L2, instead of one as already mentioned earlier (Birdsong, 1999). For example phonology, comprehension and morphology have processes of development and the length of each varies. This pattern explains the gradual decrease in L2 performance as opposed to a discontinuity, which is predicted by a critical period hypothesis. This pattern may also shed some light on why deaf writers produce language of a varying error profile with some areas (e.g. morphology) more affected than others (e.g. comprehension, information).

2.1.1 Critical period: the relevance to deafness and sign language acquisition

The majority of the deaf population, 90-95%, come from hearing families and this is mainly the reason they are considered as lacking access to a meaningful and sophisticated L1 from a young age. It has been claimed that the majority of them when they discover sign language later on in life, acquire it in a L2 manner since they are well into, if not at the end of, the critical period. The other 5-10% of deaf individuals come from deaf families who are well equipped with a sophisticated native language, i.e. sign. The critical period issue for L1 does not apply here but the critical period for L2 for the spoken/written language of the extended community can be of relevance. The review of the critical period theory and deafness will focus on the unusual case of acquiring a language late and what characteristics this acquisition may have. Is it like L2? This issue is important for the present thesis because it touches on how deaf people's language should be assessed and how their language products should be analysed.

Research on deafness and language provide strong support for the existence of a critical period. For example Mayberry's research (1993) claims that a late L1 acquisition is not the same as L2. She compared deafened signers who learned signing late with born-deaf but late acquirers of sign language. The difference between the groups was that the first group already had a L1 acquired in *early childhood* whereas the second group did not. Being tested on various syntactic structures of sign language, the two groups differed significantly, with the L1-late acquirers consistently lagging behind the L2 learners.

In another study, deaf participants of different acquisition age were recruited (Mayberry & Eichen, 1991). Native deaf people, American Sign Language (ASL) users since 5 years of age and ASL users since 11 years of age were the groups formed. All of them had been using ASL for the last 20 years of their life so all had the same length of exposure. The results again showed that the two groups of early

and late acquirers still performed worse than the natives on a number of linguistic tasks (speed of performance, accuracy, morphology). From these studies, it seems that late L1 acquisition affects almost all aspects of language and that it differs qualitatively from L2 learning. The findings describe late-L1 frequently stripped from morphology, being inconsistent with rules and having an ungrammatical appearance. It is claimed that these are not characteristics of L2 acquisition and therefore are indicative of dysfunctional language.

There is another body of research, which has different implications for this issue, arguing that the late language acquisition of deaf children of hearing parents (usually sign language) has characteristics of contact languages. The Nicaraguan project (Pinker, 1994) is the most illustrative example of this theory. A further example is provided by the case study of "Simon", a deaf child of deaf-non-native parents both which will now be discussed.

In Nicaragua until the late seventies there was no formal education for deaf people, so one can safely assume they grew up isolated. Most of these deaf individuals developed an elaborated code of communication within the family (known as "homesign"), which had some language features (i.e. preferred order, lexical consistency, limited morphemes) but was poor and idiosyncratic (Pinker, 1994). After a change in the Nicaraguan government, education was reformed and for the first time deaf children were brought together in schools. There they created the LSN (Lenguaje de Signos Nicaraguense), drawing raw material from their homesigns. It was noticed that the signing of the younger children was different from that of the older children in many distinct ways. This was because the older ones were using a pidginised sign language but the younger ones transformed the pidgin sign into a brand new language: a creole sign language. This sign language was so qualitatively different that it was renamed ISN (Idioma de Signos Nicaraguense) (Kegl, Senghas, & Coppola, 1999; Pinker, 1994; Senghas & Coppola, 2001). The issue of contact languages is very relevant to deafness and sign language and is discussed further in section 2.3.

Singleton & Newport's study (1987) reaches the same conclusion from another angle. They observed the development of a deaf child ("Simon") of deaf parents who

were themselves late-acquirers of sign language. Despite the inconsistent language input that Simon received, he overcame it and developed a more elaborated signing system, although still with some restrictions (Ross & Newport, 1996).

These findings suggest that when deaf children meet in their schools (in a country with a relatively well organised education this should start as early as 5-6 years of age) they "re-invent" sign language via piginisation and creolisation. Pidginisation is L2 acquisition with restricted input and creolisation is L1 acquisition with restricted input. Pidgin is considered to be limited as it only satisfies communication function. Creole is considered to be a fully-fledged language as it includes expression and integration of a unique culture as well. Contact languages raise the issue of procedural and constitutive universals. Here, the procedural will be discussed whereas the constitutive will be discussed in 2.3.

Procedural universals claim that certain processes have a striking similarity, unlikely to be accidental. For example, L1 acquisition, L2 acquisition and contact language development seem to follow standard paths (Winford, 2003). If deafness is linked to the contact-language process then it is directly connected to L2 acquisition. The amount of work supporting the similarities between L2 acquisition and contact languages is considerable and a few studies will be presented to argue this case. In so doing it is the intention of this thesis to put deaf language acquisition and production into the frame of bilingualism.

The basis of the theory that contact languages and L2 acquisition resemble each other is that they both use a *simplified code* (an "interlanguage") in order to facilitate communication. Contact languages and L2 acquisition have differences as well: the former is a social phenomenon but the later is an individual one; in the former there is no target language but in the latter there is and as a consequence, contact languages elicit no correction but L2 acquisition displays a lot of correcting processes. This means that the processes may be *similar* but not *identical*. Note that in deafness one more parameter is added: in contact languages and L2 acquisition there are always first languages behind the parties involved. In deafness, this is not always the case.

Of the studies supporting the 'L2 acquisition-contact language' similarities, the most quoted is Schumann's (1978) case study of Alberto, a Spanish adult learning English-L2. Alberto used a simplified version of English with many of the typology of the contact language such as pre-verbal negation, lack of auxiliaries, and unmodified verbs.

Winford (2003) also says that in *both* L2 acquisition and contact languages "learners process input for meaning before they process it for form; learners process content words first; learners tend to process lexical items before grammatical items for semantic information" (p. 6). This explains why L2 learners begin with a system, which is more lexical than morphological, even if they come from L1 backgrounds with rich morphological languages. These are precisely the characteristics of the contact languages. In addition, both processes have another commonality, *creative innovations* where a limited intake expands through compounding, paraphrase and other strategies to achieve communication.

Lastly Sankoff (2001) does not even make a distinction between L2 acquisition and contact languages and considers them both as contact language situations. She implies that the distinction may be artificial, made by the methodological defaults of the two fields that study the phenomenon: the L2 acquisition field (predominantly psycholinguistics) and the sociolinguistic field.

In conclusion, the investigation of critical period theory in relation to L1 and L2 is still unresolved, which makes it difficult to pinpoint the precise nature of the problem with deaf children and the status of their signing. However, to this author, the concept of a dysfunctional language of deaf children past an early childhood is debatable. Providing all the other important emotional and social parameters are in place, a language may not be "dysfunctional" as it serves a conscious function and carries meaning for both interlocutors. It may be "poor", "inadequate" or "ungrammatical" and can only be as good as the reasons its users are using it for. In relation to deafness and language we need to focus not only on the process of unusual acquisition but also on the social, emotional and personal needs that these individuals are called to express with the language. If education, family or society attitudes are not facilitating these needs, the language will only reflect that.

Another problem that needs to be addressed when discussing deafness in relation to critical period and language acquisition process issues is the diversity of the population itself. For the purpose of defining a theory, simplification of a population over only one of its parameters may occur (i.e. such as that the majority of the deaf population coming from hearing parents is equivalent to a L1-deprived population). However, the generalisability of these theories is restricted precisely because all the other parameters in the lives of deaf individuals are so varied, with correspondingly significant effects on the language process. No matter how often the "95%" of the deaf children of hearing parents statistic has been quoted as a paradigm of a language deprived group – and indeed that of the "5%" of deaf children of deaf parents as the lucky ones - it is true that the diversity within these groups is much greater than research has ever implied. Hearing families do not always have negative reactions to deafness and are not always slow at responding to language input. Deaf families do not always come armed with a signed language. So the truth is that the input of language not only varies between these two groups but also varies within the groups as well (Bochner & Albertini, 1988)[6] This issue needs to be understood because this study will look at the language products of different language groups, which means simplified categories will be applied. However, the diversity of the potential language groups will be revisited in the discussion.

Having considered the diversity of the population as far as language experience is concerned, this study intends to place deaf language in a bilingual context, i.e. that of L2 acquisition of different degrees. This theoretical decision comes from the fact that Greek deaf education has been around long enough to help deaf children meet and – at least informally- sign. A second reason is that if we exclude the 5% of native deaf children, who are assumed by the researchers in the field as having more normal language acquisition, the rest can be assumed to have contact language (L2) characteristics of various degrees of proficiency[7]. This affected the way the research was carried out, and in particular, language assessment as it was approached with a

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6 This is an excellent review of the language varieties in the deaf population, describing not only the varieties of spoken/written language (English in this case) but also the signed varieties (from Pidgin Sign English to sign language) along with the variety of parameters that affect language production such as age, input, sensory capabilities, etc.

7 An important reminder here is Creole is the L1 for their users who may not be or feel bilingual at all. However, this L1 due to be born out of contact procedure, still displays L2 linguistic characteristics.

bilingual perspective (i.e. applying criteria used in L2 assessment, error analysis etc.).

2.2 Sign languages and spoken languages

Considering that this study approaches deaf writing as a bilingual phenomenon, it is necessary to present some of the properties of sign and spoken languages in order to approach the profile of a deaf writer. So here, the two types of languages, the visual and the oral, will be examined although the field of sign linguistics is relatively unexplored compared to the linguistics of spoken languages. Most of the exploration comes from ASL and BSL (British Sign Language) but research is currently developing in sign languages such as Italian Sign Language, Dutch Sign Language, Nicaraguan Sign Language, Greek Sign Language and others. Research has described some common characteristics among sign languages but it is still debatable whether there are specific features due to the modality.

There will be two issues discussed in this section, which may be related to difficulties in deaf writing:

a. the visual/concurrent processing of sign languages as opposed to audio/sequential processing of spoken languages and

b. the description of properties of different sign languages.

2.2.1 Processing of sign language and spoken language

It has been argued that although the two languages are triggered by the same principles, the route they follow is different. Sign is visually processed and speech is auditorily processed and this has consequences for perception of the language users of each language that are modality specific (Anderson, 1993; Marschark et al., 1997; C. Miller, 1994; Paul, 2001; Poizner, Klima, & Bellugi, 1987).

In brief, sign languages, because they are visual, employ the space, the face and body of the communicator for linguistic functions. Visual perception has the capacity to process all these elements together and create a compact concurrent language such as sign. On the other hand, phonetic-based languages are characterised mainly by temporal-sequential or linear syntactic properties. This concurrent vs. linear language characteristic has various alleged effects on memory, attention and possibly on literacy. The memory effect is the best documented. Marschark, et. al (1997) have reported that deaf subjects do worse in remembering sequentially arrayed signs than hearing subjects do in remembering sequentially arrayed words. The researchers attributed this to the properties of each group's language. On the other hand hearing subjects are reported to lag behind in remembering items that are presented in "chunks" (i.e. spatially-concurrently) compared with deaf subjects (Paul & Quigley, 1994).

Concurrent layered properties and most notably, that of the use of space and the face can explain why sign language did not develop in the first place in a linear mode. Memory is the key here. Stuckless, quoted by Anderson (1993) has put forward that the two kinds of memory that hearing and deaf people use are dramatically different. The hearing use the "echoic memory" which permits the hearer to retain a series of sounds long enough to process them as complete words or phrases. The deaf use the "iconic memory" which although it can hold more information than the echoic, it has a much briefer decay time. So sign language when adapted into English (or any spoken language grammar, e.g. via sign supported systems) can become too lengthy for efficient processing.

Although research seems to agree that concurrency characterises visual processing and sequence characterises aural processing, their dominance is a matter of degree rather than exclusiveness. Speech and signing can be both concurrent and sequential. McNeil (2002) shows that the concurrency of speech is embodied in gestures, which are holistic in their meanings rather than combinatoric. He argues that gesture and speech are inseparable and therefore spoken language is dual. By the same token, sign language can be combinatoric in meaning (phonology & morphology), which makes it sequential (Brennan, 1994; Liddell, 1984; Liddell & Johnson, 1989).

2.2.2 Properties of sign languages and spoken languages

The second issue to be discussed concerns specific linguistic characteristics of signing. Some of them are similar to spoken languages but others are the result of the visual-spatial element of the language. For example, a simple main clause of a typical linear order of many spoken languages, can be signed in a single movement, e.g.: I-LOOK-AT-MY-ARM or POUR-WATER-ON-SOMEONE'S-HEAD. Also, a more complex sentence of a subordinate clause like: "I was reading while he was talking" is signed simultaneously (R. & Sutton-Spence & Woll, 1999). The same is true of adverbs, as they are often aspects of the verb they modify. Therefore concurrency in verb and noun modification may become problematic for deaf writers.

Non-manual features are also poorly understood but widely accepted to reveal grammatical information such as negation, question, markers for subordination, among others (Neidle, Kegl, MacLaughlin, Bahan, & Lee, 2000). It can be argued that this is not as different as paralinguistic spoken features such as pitch of voice or speech velocity. Nevertheless, it is true that non-manual features play a much more pervasive role as *grammatical* carriers in sign languages and not so much of a *stylistic* value as paralinguistic features play in speech.

Differences between spoken and signed languages could be the result of a constellation of parameters such as orality vs. literacy influence, the unusual process of sign acquisition among the majority of the deaf population, and eventually modality. As research in sign languages increases, less and less differences are found which are due to modality. Just ten years ago certain characteristics were believed to be non existent or different in sign languages and spoken languages (see Anderson, 1993 for a list of differences). Now sign languages are increasingly separated from each other, as there may be differences among them and they are not contrasted to spoken languages as much because spoken languages are equally diverse.

An account is now presented of the differences that have been challenged most recently and which may be relevant to deaf people's writing.

1. _Topicalisation preference of sign language_: Topicalisation means that the "topic" –what the sentence is about – comes first, followed by the "comment" –the point the sentence wants to make. Another term used is the "given/new information" where the given information is what the producer of a text or sentence assumes that his interlocutor already knows or can retrieve from context or common sense. The new information is what cannot be assumed and has to be stated explicitly. Under this prism, topicalisation seems to be the case for most of the Subject-Verb-Object (SVO) languages for example English or Greek:

> *(1)* Mary bought a dress

> II Μαίρη αγόρασε ένα φουστάνι

where "Mary" is the topic/given information and "a dress" is new information. Usually new information is marked with indefinite determiners such as "a" in this case. Even if these two languages are very different -e.g. English relies on word order and Greek relies on morphology- they both belong to the 42% of languages which favour this particular order (Aitchison, 2000).

As far as sign languages are concerned it has been supported that they fit into the topic-comment category (Brennan, 1994) because any noun phrase can be fronted as the topic –*not only* the subject- without changing the verb phrase or the constellation of the sentence. In fact even the verb can become the topic of the sentence in sign, giving us three unmarked cases apart from the SVO one:

> *(4)*   a. MARY DRESS BUY-past = As for Mary, it is a dress that she bought
>
> b. DRESS MARY BUY-past = It is a dress that Mary bought
>
> c. BUY-past MARY DRESS = As for buying (e.g. the dress / something) it is Mary who did it

The issue of all sign languages being altogether topic-prominent has been challenged. Early research on ASL from Fishcer and Liddel (in Aarons, 1994) and more recent by Neidle et al.(2000) has supported that ASL is basically SVO although topicalisation can occur with non-manual marking or because the word order is more

flexible. Another study on Japanese Sign Language shows that there is an overwhelming SOV or OSV word order that may be connected or not with this preferred word order of spoken Japanese (Nakanishi, 1994).

In the case of the present study, GSL has not been explored formally on its word order, although topic-comment structure is grammatical and is used extensively. The question remains whether topicalisation is a marked way or is the preferred way of arranging signs in sign language. As we will see topicalisation is relevant to this study because it can be detected in deaf students' writing in various forms.

2. _Passive voice_ has been argued not to exist in ASL and it is a point of debate on other sign languages although research is inconclusive on the matter as well (Anderson, 1993). For example research in Irish Sign Language shows that there are detransitivisation processes where the prominence of the agent onto the patient (i.e. subject onto object) promoted which is similar to changes of voice (Saeed & Leeson, 1999). It is possible that the passive voice does not exist or that it is a marked form in sign.

3. _Sign language modification is incorporated in the nouns or verbs_. In sign languages, adjectives are frequently incorporated into the noun (i.e. BIG-BOX and a SMALL-BOX). Nevertheless when adjectives are used separately from the noun, then rhythmic/temporal compressions will make apparent whether a compound is intended (1) or a modifying phrase [relative, i.e. (2)] (Anderson, 1993). For example:

    (1) BLUE SPOT → bruise
    (2) BLUE SPOT → a spot, which is blue

Another difference in noun modification is the pluralisation of the classifier rather than the noun itself.

Adverbs are also frequently incorporated into the verb sign. Signed verbs have much concurrent information (e.g. duration, manner, location, number, object) whereas spoken languages deliver this bulk of information by adding words despite the paralinguistic channel. The result is that spoken languages tend to use more adjectives and adverbs as separate units than signed languages (Brennan, 1994; Engberg-Pedersen, 1994).

4. *Verbs are not marked for tense*. This is also an area of debate in sign linguistics. The most prevailing feature seems to be that tense is contextualised in the beginning of a narrative and all following verbs are assumed to be in the past or in the "historical present" which are the tenses most frequent in narratives. Outside narratives, verbs are placed on a "timeline" (R. & Sutton-Spence & Woll, 1999). ASL linguists however have claimed that as far as ASL is concerned there is evidence of tense marking which expresses itself as lexical items distinct from time adverbials, and as distinctive facial expressions co-occurring with the articulation of the verb (Neidle, Kegl, & Bahan, 1994; Neidle et al., 2000; Shepard-Kegl, Neidle, & Kegl, 1995).

6. *Auxiliary verb system is weak in sign languages*. In a very broad sense, auxiliary verbs are the verbs which influence the main verb of a proposition. More specifically though there are fine differences between lexical auxiliaries such as modals (can, must, would, should, ought to) and grammaticised auxiliaries such as the verbs "to be", "to have" and "to do" for English language. Sign languages do have modal auxiliaries (CAN, WILL, SHOULD and MUST) and this is widely accepted. They are rendered either by a separate manual unit-sign or by modifying facial expression (R. & Sutton-Spence & Woll, 1999).

The auxiliary system becomes a bit weaker when it comes to auxiliaries of aspect, tense and voice. This does not mean these categories cannot be rendered otherwise. In fact the aspectual system in sign languages is very rich when it is expressed as a verb characteristic (i.e. duration or repetition of movement). Perfective aspect also is present in sign (i.e. BEEN or FINISH in BSL and ASL and the perfective sign "PA" which is signed as well as mouthed in GSL) (Sampoutzaki, in preparation; R. & Sutton-Spence & Woll, 1999).

Nevertheless, grammaticised auxiliaries do not occur consistently in signing. Lexical auxiliary verbs are different than grammaticised auxiliary verbs in certain semantic and syntactic properties at least as described in spoken languages. The first have more "dictionary" meaning, and they are not inflected. Grammaticised auxiliaries have less of a "dictionary" meaning and a lot of grammatical function in the

formation of tenses, passives and for some languages such as English in negation and question structures. In addition they are inflected. An example of gramaticised auxiliary non-existent in sign languages is the copula verb "to be".

Recent papers on auxiliary use on sign languages have come to the conclusion that grammaticised auxiliary forms of verbs have been detected in signing and they usually come from already existent lexical verbs of the languages although not exclusively (Nakanishi, 1994; Sampoutzaki, in preparation; Yasuhiro & Yuko, 2000). Indicatively, Nakanishi gives an example of the sign DRAW-OBJECT-TOWARDS-ME being grammaticised as NEED and now used as an auxiliary in Japanese Sign Language. Nevertheless, he mentions that research on the subject is still at an early stage. Sampoutzaki (in preparation) also gives several examples of grammaticised auxiliaries found in different sign languages.

7. _Subordination is weak in sign languages_. Anderson (1993) explains that as far as ASL goes it makes provision for subordination and that it is its users who impose closure on any SVO series. This probably has to do more with the conversational function of sign languages than with lack of subordinate structures.

BSL and other sign language have also described ways of subordination of various types. Mainly it has been argued that non-manual characteristics mark subordination of different kinds such as relative clauses and conditionals (Aarons, 1994). Indirect speech also is differentiated from direct speech via less role shifting and changes of pronoun deixis (Papaspirou, 1997).

However, research is not yet clear as to how and which non-manual features distinguish one form of subordination from another.

8. _Sign languages do not have function words_ in the sense that some spoken languages have. If we consider sign languages as polysynthetic languages this is predicted from the typology of these languages (Morgan, Barriere, & Woll, under review). In fact polysynthetic languages have fewer function words than other language types as their complex word structure makes them redundant.

Again recent research has shown that ASL at least, has both kinds of determiners, definite and indefinite (Neidle et al., 2000) and the existence of modals and aspect markers such as "FINISH" in ASL and "PA" in GSL make this case weak.

2.3   Contact languages and sign languages

Pidgins and Creoles are languages, which were created in situations where the users of each of the contacting languages were unable or unwilling to acquire one of them. The result was a fusion between the contacting languages, first by simplifying them (pidgins) and then by elaborating the new simplified code (Creole).

Most of the theories on contact languages come from spoken languages in contact. There is much literature on the issue and an agreed typology some of which is presented below. This typology has striking similarities with sign language features as described above:

- The tense – mood – aspect system is not equally balanced: aspect is more developed than tense and mood.

- To indicate time and aspect, verbs use auxiliaries, which stand on their own (i.e. content words).

- They use content words of one language to make function words for the new (grammaticalisation).

- Verbs have no distinction of number. The number is given by pluralising the pronoun. Plurality is also non-existent in nouns and Creole prefers to pluralise the classifier instead.

- They make use of serial verbs and coordination dominates over subordination.

- They lack true passives.

- They use a supply of basic lexical items and the language expands on that, using compound process or circumlocution. Also they expand their vocabulary by sequencing nouns.

- They make use of reduplication, which is used with different functions.

- They use topic-comment structures and as a result they produce subject-copying.

- They lack copula verbs and they use the verb "to have" to express both possession and existence (e.g. as "to be").

(Aitchison, 2000; Eklund, 1996; Holm, 1988; Jungbluth, 2003; Lefebvre, 1998; Sampoutzaki, in preparation).

Before the discussion progresses to whether sign languages fit into the contact languages profile, it is necessary to see whether contact languages and mature languages have distinct typologies and hence a number of points need to be raised. Firstly contact languages have always been considered unsophisticated compared to the mature languages. It is true that contact languages are simplified codes of other languages. Diamond however (Diamond, n.d.) says that the negatives, i.e. lacking seemingly standard grammatical items, can be counterbalanced by consistent word order, conjunctions, relative clauses, and auxiliary verbs. Secondly, many of the above Creole features can also be found in mature/spoken languages such as for example the absence of the passive voice or the existence of topicalisation in Chinese Mandarin. Finally, a careful investigation of the history, linguistics and sociolinguistics of Creoles may put forward a weaker form of their *procedural universal* characteristics (i.e. that the influence of the substrate languages, the languages spoken by the populations with the least power, on Creole formation is generally understated).

Many researchers propose that the language of deaf children of hearing parents may reveal more about language universals and language creation than Creoles. This is because Creoles are about contact languages and may be more relevant to the issue of "language change" rather than "language creation". Deaf children of hearing families are closer to a language-creation situation (Eklund, 1996). The Nicaraguan project has strongly shown that language can be created without consistent input and sign languages do have Creole characteristics, although modality may cause problems in their definition (Kegl et al., 1999).

Despite these considerations, contact languages have been widely accepted as a unique bilingual phenomenon and sign languages seem to fit in the area particularly because of the unusual language acquisition by deaf children. To date, the standard way for deaf children of hearing parents to learn any language in a relatively

consistent way (either spoken or sign language) is in environments such as school playgrounds or deaf clubs and socialising with deaf peers. This is atypical language acquisition, which is *horizontal* (i.e. language passed on from peers to peers) rather than a typical *vertical* process (i.e. from older to the younger generation). In these informal environments, deaf children of all ages, each with their unique homesign system and idiosyncratic communication, meet up with other deaf children as well as with native signers. The situation created resembles not only Creoles but also what is called *rapid creolisation* (Holm, 1988). In rapid creolisation the population is uprooted and displaced and the languages in contact do not fuse slowly but in an incohesive and unstable manner. This situation is more likely to exhibit Universal Grammar features than a smooth creolisation situation, as it did not have the time to "assess" the contacting languages. In a smooth creolisation, the young population acquires Creole like a normal first-language acquisition because the language is coherent and stable. Deaf children resemble the first generation of slaves on the islands of Hawaii and the Caribbean in the beginning of the century whose families were violently displaced. The only difference with deaf children and Hawaiian or Caribbean children is that the story of rapid creolisation/pidginisation is repeated with every deaf member of a hearing family.

The whole picture of Creoles and sign languages has to be complemented by the effects of orality vs. literacy (see Chapter 1). It is commonplace to theorists that oral languages differ from languages with literacy and that the written word has a great impact on the discourse of the language. For example, oral languages are dominated by the use of various *mnemonic patterns* such as the overwhelming use of repetitions, redundancy and "copious" behaviour, as well as simplicity in linguistic structures such as the use of coordination as opposed to subordination, or use of active voice as opposed to passive. They also have other preferences such as aggregation rather than analysis (in the sense that language favours clusters of elements rather than simple elements); contextualisation such as favouring present tenses to past or future ones, direct to indirect reference, etc. (Branson, Miller, & Marsaja, 1996; Ong, 1982; Rohas-Primus, 2002). All the above characteristics can reinforce the existence of some of the typology of the contact languages and sign languages purely by their oral nature. In fact, Branson et al. (1996) suggested that

sign languages may share more things in common with oral spoken languages than previously thought and the same may be true of Creoles (Rohas-Primus, 2002).

From the above analysis it seems that sign languages match contact languages, albeit imperfectly, especially due to their unusual within-generation transmission. It is also obvious that both areas of contact languages and sign languages remain controversial, especially with reference to their typology. The issue of the typology of contact languages and all the complex related parameters underpin the context of the present research. The reason for this is that the deaf population studied here was not native deaf signers but deaf children of hearing families. As such, their L1 experience was atypical and their language production (either their sign or written language) varied enormously in nature: from the simplified and impoverished pidgin to the more sophisticated ruled-governed Creole type.

2.4 Summary of "Deafness and Language"

The past chapter explored language processing & acquisition as areas that are relevant to the deaf population. The most relevant area is that of a critical period, either for L1 or L2. The critical period debate was explored in order to present the deaf population in the context of the language debate as a language risk population and a bilingual one. Also, some understanding of the critical period debate will help interpret some of the findings but will also be relevant in argumentation about bilingual education for deaf children. The linguistic characteristics of sign languages and contact languages were explored, both of which are relevant to the discussion and interpretation of the errors of deaf students in their written narratives. The first is relevant as deaf students are likely to transfer structures from sign language into their written texts. The second is relevant for similar reasons; it has been claimed that sign languages display contact language characteristics, which also may be transferred into the texts. Finally, contact characteristics provide an interesting phenomenon in bilingualism in general and can help to explain the language behaviours of all bilinguals, which takes the issue further than solely sign languages.

3   BILINGUALISM

The present study is investigating deaf students' writing, which the last decade was placed in the broad theoretical context of bilingualism. The theory that the production of spoken and written language by deaf people is in effect a L2 can be backed up by research on contact languages and the critical period (see chapter 2), as well as by research which increasingly shows that the written language errors deaf people made, could be explained as L2 errors.

In this chapter, the framework of bilingualism will be defined in order to relate it to deaf people's communication and education. The following areas will be explored:

- **Theories on L1 – L2 interdependence**. This is relevant to the study as interdependence of the two languages of a bilingual, in our case deaf writers, determines the language product, in our case written narratives.

- **Theories on bilingualism and L2 acquisition**. This is relevant to the study since the classical theoretical models on bilingualism have been the basis for justifying bilingual education in minority populations and are currently introduced in deaf education. Also they provided the framework of how to analyse methodologically and assess L2 products. Recent approaches to aspects of bilingualism and in particular language-fusion, may be cathartic for many language minority populations, populations with low-esteemed languages, contact language users and others, in that they acknowledge the psychological need of the bilingual to merge his/her languages.

- **The implications of bilingual theories on bilingual education**. Specifically, how to teach an L2 and the role L1 plays in the process. This is an important exploration into an educational method just about to be applied in deaf populations. However it has caused great controversy and it is essential to explore its pros and cons in known populations in order to draw analogies to deaf students. In addition, another major issue of bilingual education is discussed here, that of assessment. The relevance to the present study is great as not only the participants were assessed in both GSL and written Greek but also the criteria used were drawn from this discussion.

- **The process of bilingual writing, specifically translation vs. direct composition of written narratives and their assessment.** Firstly theoretical models are presented in order to explain the inner process of L2 writing. Then a crucial overview of literature is presented on translation vs. direct writing in bilingual populations and their effect on the L2 written product. Is the product better when L1 is involved or is it better when it is done straight in L2? Research presented has also taken into consideration the proficiency levels of L2 writers, which may influence the L2 product. This literature review is crucial for the present research, as it has used both translation and direct writing in a deaf bilingual population of varying L2 proficiency.

3.1 Thought and language and the bilingual mind

In order to understand bilingual education –and the demand of deaf education to become bilingual- we need to understand the theories which support it. These theories spring from concepts of the relationship between language and thought and how these are organised in a bilingual mind. There are two extreme scenarios, nonetheless both supporting a *subordinate relationship* between language and thought. Linguistic determinism supports that language forms thought. Cognitive determinism on the other hand supports that language is a by-product of thought. The debate on the language-thought issue has reached a compromise, which accepts an interdependence relationship. According to this relationship, there is a general conceptual store and the stores for each language can be either separate or shared, depending on the activity and the context[8].

For Hakuta (1986), the issue is not whether the two languages of the bilingual are independent or interdependent. The question should be redirected as follows: under which circumstances are the two languages kept distinct and under which

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[8] For example, in the context of casual conversations, code-switching, involves overlapping sections of two (or more) grammars, which is evidence of a shared store. On the other hand, in the context of professional interpretation and translation there is evidence for a separate store, since typically the interpreters switch between languages by reiterating in one language a message that was originally in a different language (Wei, 2000).

circumstances are they merged? The situations may differ for a number reasons such as that the bilingual usually uses each language for a specific purpose, with specific people and for specific topics. For example, until now, sign language has been mostly used for conversational purposes, but not for academic ones, such as school teaching. This may have important implications for the relationship of dependency vs. independency of sign language and spoken language for the bilingual deaf person. It is indeed rare for a bilingual to use both languages equally and in all domains of life.

Slobin's work (1996) is consistent with the above, but he claims that the languages of a bilingual may vary to a great degree in their conceptual overlapping. Slobin (ibid) proposes that there is a particular kind of thinking strictly tied to a language called "thinking-for-speaking" (or "thinking-for-writing" in our case) where one cannot talk or write about an event without taking a perspective and that the language being used favours particular perspectives. This feature of linguistically encoded perspective is perhaps what makes a L2 hard to master or the reason why translation between languages seems sometimes to lack some of the original meaning. For example, a text's translatability can be affected if translated to a language that does not share the same linguistic structures.

It seems that mental organisation and the degree of interdependence between the languages of the bilingual heavily relies on the task, the context and the common conceptual and linguistic basis the languages share. This is important note for the present study, as it must be acknowledged that the tasks given to the participants were highly language-dependent (i.e. translation tasks) and the context was very academic (i.e. writing in school environment as opposed to casual conversation).

3.2 Theories on bilingualism

There are a lot of descriptions on how it feels to be a bilingual. Nevertheless, there are not many successful theoretical models and the ones that dominated the area of bilingualism are considered classic works by now: Krashen's monitor model (1981),

Selinker's interlanguage model (1972; 1991) and Cummin's BICS/CALP model (1979). All will be briefly presented, as they are different approaches of the same phenomenon: the first is developmental, the second is descriptive and the third is educational.

Krashen (ibid) made a distinction between "L2 acquisition" and "L2 learning". **Acquisition** is an unconscious holistic experience, which happens naturally, whereas **learning** involves a conscious attention to rules and usually happens in formal (i.e. unnatural) settings. L1 (Krashen, 1981; Paul, 2001). Krashen believes that L1 and L2 processes are identical *developmentally* and therefore one can experience "acquisition" of an L2 late in life, as long as s/he receives natural meaningful exposure. The natural way is sufficient and the "monitor", i.e. explicit attention to form, just improves the product. However, the acquisition-learning relation becomes uneven with age and the monitor function takes over, as other factors get in the way. For example, the older one is being exposed to an additional language, the more experience s/he has with his L1 and s/he develops attitudes and aptitudes about languages.

This model explains the phenomenon of bilingualism in a developmental course. It also exposes other complications about the input and the context of acquisition but it seems to be conflictual at points, as the major processes of acquisition vs. learning eventually have the same developmental nature.

Selinker's theory (ibid) is more descriptive of the bilingual phenomenon. Although he was not the first to come with the idea of a sui generis intermediate language system, he put a name on it that has stayed on until today: **interlanguage** (hence **IL**). IL is an idiosyncratic version of the target language (or L2) and although it *is not* the L2, *it is* a language, which obeys universal grammar and thus a natural language. IL has so much of the status of a language that it can afford to become *fossilised*. This is a concept that is central to the theory. Fossilisation of IL is when the process towards forming L2 is halted and IL remains as it is for various reasons, i.e. communicative integrity or unavoidable cognitive functions such as transfer (Paul, 2001). IL was the counterbalance to the dominated idea of the time, namely that the L2 phenomenon can be explained 100% by the two systems involved. This attached too much

attention on mapping the one system onto the other and explained all L2 errors as negative transfer from L1. On the contrary, **IL** proposed that there are language errors that cannot be explained within the framework of the two systems alone and used "Error Analysis", a method to analyse errors (hence **EA**). **EA** claims that errors can be described by looking at the **IL** of the learner and the L2 while ignoring L1. The effect of L1 though is so obvious on the L2 product that the above claim had to be moderated; now, **EA** is basically looking at the errors as meaningful linguistic constructs of all L1, L2 and universal grammar parameters (for extensive analysis on EA, see James, 1998).

The **IL** model has been criticised that it does not provide any explanation of the difference between early and late learners (Paul, 2001). Here, one could claim that fossilisation *is* the distinctive difference; nevertheless, it is true that the model is not a developmental one but a descriptive one. Despite its shortcomings however, **IL,** especially the method of **EA,** gave errors a good name. They are not considered a negative undesirable product anymore but a window to the mental process. The present study has drawn greatly from the method of **EA** to analyse the written texts of the deaf participants.

The last approach to bilingualism comes from Cummin's BICS/CALP model (1979). This is a model that turns the spotlight on the context, function and purpose of L2. Cummins claims that BICS (Basic Interpersonal Communicational Skills) and CALP (Cognitive Academic Language Proficiency) are two different skills of bilingualism (Cummins, n.d.). More plainly, the distinction lies between conversational and academic language, or contextualised/decontextualised language; they necessitate different processing, and are connected with different power relationships (i.e. standardised languages vs. dialects, minority vs. majority languages). Cummins developed this framework to explain the different time periods that L2 learners go through to acquire face-to-face aspects of proficiency as compared to academic aspects. He therefore concludes that not all aspects of language can be put under the umbrella of a global language proficiency (Cummins, 1991). His model, implies that there should be different criteria to assess bilingualism in an academic context and different for fluency and functional communication. Since assessment and language

provision are usually done in schools, what is assessed is academic bilingualism, which cannot be used to evaluate the other set of skills.

Cummins believes that there is a "Common Underlying Proficiency" between the languages of the bilingual. This means that the L1 and L2 may appear different on the surface, but they do share a common cognitive function. The "Common Underlying Proficiency" theory suggests that skills developed in L1 will transfer in L2, especially with regards to literacy. So academic skills learned in L1 do not have to be re-learned in L2. As children usually go from the known to the unknown, it is wise to use the pre-learned knowledge in equivalent but unknown areas (i.e. L1 literacy → L2 literacy). This may constitute the fundamentals of bilingual education.

Recently, the phenomenon of bilingualism has started to be considered such a relative concept that it is described as a characteristic of its user rather than an absolute language phenomenon. A concise description of the current trends can be found in Mackey (2000) who sees bilingualism as a linguistic behaviour whose patterns vary in *degree, alternation, function and interference*[9]. In addition, recent literature on bilingualism is more attracted to its sociocultural dimension than its cognitive aspects. Bilingualism is viewed in terms of power relations –a means of power as well as a means to resist to it (Heller, 2000). Heller believes that, although bilingualism/multilingualism has more grounds to flourish now, in a pluralistic world, this is done in superficial ways:

> "While the voices of the marginalized are indeed appropriated by the newly powerful, they are incorporated (as 'fusion' or 'crossover' phenomena) into dominant languages and discourses. True fusion, all the time, is not valued; what is valued is the careful separation of linguistic practices, being monolingual several times over (and proving it by making a slip or two every now and then)" (p. 10).

This delicate issue of "true fusion" revolves around the true nature of bilingualism. "Code-switching", "code-mixing" "transfer", "borrowing", "interference" "language alteration" are categorical terms used to define the fusion-phenomenon. Even

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[9] *Degree* is how bilingual is a bilingual (i.e. how much of his/her languages s/he knows). *Function* is the use of languages. *Alternation* is the readiness with which a bilingual changes from one language to the other and *interference* is the degree of blending the two languages.

nowadays, the fusion of language is not considered a psychological need of the bilingual that may entail linguistic, social and identity issues, but is seen as an inadequacy to operate in one or the other language and a sign that the language user is permanently lost for words and permanently in a state of compensating for it.

The issue of language fusion, more commonly known as code-switching or code-mixing, is prominent in recent literature. Not only it is connected with the recognition of the existence of the inevitable "lingua franca" but it is also connected with the empowerment of their bilingual/bicultural users, which are usually stigmatised (Keats, 2003). More and more, code-switching is being studied as a common, legitimate practice among bilinguals and recognised as a language by no means impoverished or ungrammatical (Auer, 2000; Myers-Scotton, 2000). Because of their authenticity, psychological reality and empowering ability, fusion languages gain more and more supporters (Keats, 2003; Stavans, 2003). Keats believes that the purity of language is a futile wish and we should embrace and accept the mingling of languages. Code-mixing, although beyond the scope of this thesis, is relevant to the deaf population as a minority population in possession of two language and two cultures. The deaf population need to be empowered and acknowledged of their special bilingual/bicultural identity rather than be considered a population trapped in a linguistic and cultural no-man's-land.

Like all other bilingual populations, mixing and switching between the languages of the hearing and deaf community is a common practice among deaf people. Linguistic loans from the majority spoken language to the minority sign language, as well as code-switching, are very common in deaf signing (Rachel Sutton-Spence, 1999). As happens with all bilinguals, deaf individuals mix their languages on many levels (e.g. lexical, syntactic and morphological) and may also borrow from other sign languages. This language mixing may take various forms such as more or less fingerspelling, more or less mouthing, etc. As always, the degree will vary with each individual and context. For example, a sign bilingual may codeswitch more in conversation with another sign bilingual, may adapt his/her signing to a more "spoken" word order when speaking to a hearing person and then use sign language when having a conversation with a deaf person who is either not very familiar with the spoken language or feels culturally very Deaf. As Sutton-Spence (1999) explains,

the reasons may be "aesthetics, expressions of social identity or limited knowledge of one of the languages" (p. 366). One would concluded once again that in deaf bilingualism, moving within the interlanguage continuum in various ways is part of the natural language repertoire for deaf people and depends on the bilingual experience and the attitude of each signer.

3.3 Bilingual education

Bilingualism has moved where more complex, political and individual powers are at stake: empowerment of populations, minority languages and attitudes about minorities, cultural identity and language... Therefore, bilingual education today has become, perhaps more than ever, a political issue. It is important to discuss bilingual education at this point, despite the fact that the population of the study had not been educated bilingually. It is relevant in order to see how the demand for sign bilingual education arose, what issues other than raising literacy standards is trying to raise and how it fits into the general "bilingualism-minorities-empowerment" social frame.

Bilingual education is not a new thing. In the New World, and more specifically in the U.S. and Canada, the multicultural/multilingual background of the citizens imposed a bilingual perspective in educating populations from the beginning of the century. Most of the practices, results and argumentation therefore come from this side of the Atlantic.

The grounds, on which the debate has mostly flourished concern two things: *identifying the populations* and *deciding on the method*. The problem with the population is to identify their "bilingualism". The problem with the method is to decide the role of the L1 in teaching the target L2. The fact that formal schooling is primarily concerned with the academic use of language, mainly literacy, rather than the communicative, casual function of it, complicates things even more. This is especially so if one of the language does not have a literate background.

In the next chapter the following topics will be discussed:

1. The practices and results of various bilingual methods and particularly the role of the additional language in the results,

2. How we assess the achievements of bilingual populations.

Both topics have influenced the new approach of bilingual education for deaf students using sign language to teach written language. The results of bilingual education in the hearing populations will be reviewed and later extended to deaf populations as well.

3.3.1 Teaching bilinguals

In teaching a L2 we need to define two complicated parameters: the students and the methods. As far as students are concerned, they come to school with different profiles and do not always consider the L2 to be a less developed language than their L1. For example, many children of immigrant families come to possess a less developed mother language (L1) than environment language (L2). Hence the endless terminology developed in the field: L2 teaching, additional language teaching, bilingual teaching, foreign language teaching, etc. As far as the methods are concerned, two extremes have been set, between which practices shift: using the L1 in teaching L2 or teaching the L2 without any L1 interference.

In the context of the present study, deaf education has advocated the use of sign language, which is not always the L1 of the deaf students, in teaching the written form of the spoken language. Much argumentation is based on the apparent advantages of bilingual education in other populations (i.e. minority language populations and minority language populations without literacy). However, there is a considerable amount of voices speaking out against L1 involvement; and unfortunately these come from places where bilingual education has been applied for decades without apparent success. So, it is necessary to explore current issues in bilingual approaches to education, the most prominent being the place of L1 in L2 teaching.

The arguments against L1 use (or use of any other language than the target L2 language) mainly concern interference issues. Structures from one language may interfere with the target language unless the two languages are kept apart. It has also been argued that using two languages in the same setting may make it more difficult for the child to separate them into independent linguistic and communication systems (for more extensive review see Cook, 2001). Apart from this, there has been dissatisfaction with the outcome of bilingual approaches. The bulk of the complaints come from the area of education of Hispanic children in United States, for which group bilingual programs were initiated. In this group, bilingual education has not resulted in an improvement of literacy skills compared to other minority groups, such as African-Americans, even though bilingual approaches have been used for decades (Noonan, 2000; Porter, 1990). Also, Porter claims that bilingual education is implemented in the name of cultural sensitivity and ethnic politics and does not even improve the psychological state of students nor their academic achievements (Porter, 1998).

The pro-bilingual education camp has a considerable amount of supporters, among whom there is a general enthusiasm of the positive role of L1 in teaching another language (August, Calderon, & Carlo, 2000; Bialystok, 1991; Cummins, 1991, 2001; Hakuta, 1999; Hakuta, Butler, & Witt, 2000; Krashen, 1999, 2001; Mayer & Akamatsu, 1999). Hakuta (1999) claims that bilingual programs show advantage in comparison to the other educational programs *providing* we control for background factors such as socio-economic status and educational level of family. He also reminds us that most of the bilingual reports coming from the U.S. relate to a specific group with a specific socio-economic background concentrated in a small region of the country. 75% of the ESL students come from the Hispanic population, which is usually poor, most are settled around California and most attend high-poverty schools; therefore, it is not wise to generalise.

Cummins (2001), too, is a classic proponent of bilingual education. He has not only emphasised the positive direct academic results of the L1-L2 cooperation (see 3.2) but has also noted indirect positive result, i.e. empowerment, as the psychological result of being taught in both languages. Empowerment means to acquire skills and potentials from low-power populations, which are, typically, bilingual populations

with minority languages. Empowerment can only be achieved through collective action, such as education, and it can build strong identities. Here, we see the inseparability of language and culture, or otherwise bilingualism/biculturalism, as is known in the educational field. Cummins cites the work of three case bilingual schools from different continents (one in New Zealand, one in U.S. and the other in Belgium), where academic achievements of students were high and where students felt that their identities were affirmed and negotiated.

The bilingual/bicultural concept is more than a method and it is still very poorly understood (Paul, 2001). It draws attention to the fact that education *has* political agendas and that undercurrent powers are operating beyond the languages of instruction. Perhaps this is one of the major reasons why bilingual education has fired so much debate, and this implication is acknowledged by both opposing camps in this controversy. The anti-bilingual camp says that bilingual education is more about giving status to the political struggle of minorities rather than promoting real equality (Porter, 1998), whereas the pro-bilingual camp holds that the issue is politicised by nature as educational policies are inevitably influencing society and the distribution of power and resources (Crawford, 2002).

Ultimately, both are advocating different practices having the same goal: the real participation of minority populations in the world via high standard education and high self-esteem. The difference is that the ones see self-esteem as a result of the minority population assimilating to or, ideally, becoming part of the majority while the others believe that self-esteem will spring from accepting one's difference and changing the majority's attitudes towards minorities. This sounds like a huge philosophical gap to be bridged in the short run and the prediction is that education for minority populations will go on being realised in an atmosphere of conflict and controversy.

3.3.2 Assessing bilinguals

More often than not, assessment of bilinguals concerns the academic use of the language rather than the communicative one. The parameters of assessment relevant to this study are the following:

- *Measures (levels and criteria).* How are they set?

- *Instruments and methods.* Who does the assessment?

These parameters are relevant since the participants of the present study were assessed in their written language. Much of the criteria used in the assessment of this study were based on the relevant literature that follows. Also, decisions on who will assess are justified from the literature presented below.

3.3.2.1 Measures

This is about how language knowledge is measured. Do we assess accuracy, proficiency, fluency or competence and according to what criteria? There are different measures for each, which has resulted in a number of assessment measures and criteria: anything between the classic three stage scale of "beginners – intermediate - advanced" (Varlokosta & Triantafillidou, 2003, to appear) going up to the nine-stage scale of "superior-advanced, high-advanced, mid-advanced, / high-intermediate, mid-intermediate, low-intermediate / high-novice, mid-novice, low-novice" (see levels and criteria set by the American Council of Teaching Foreign Languages ACTFL, 1999).

Primarily, there should be a clarification on *what* assessment measures. Ironically, the clearest explanation comes from error analysis, which is done *in order* to assess language. In error analysis, there is a trichotomy of error type: **error > mistake > slip,** the error being the most serious one. This trichotomy coincides with the classic trichotomy of the "beginners-intermediate-advanced". *Slips* are self-correctable without aid; *mistakes* are self-correctable if pointed out and *errors* cannot be self-corrected because they are caused by a knowledge gap and require further learning (James, 1998). This general description of language competence according to James, can give us an idea of what the terms account for with respect to L2 assessment:

COMPETENCE

⇓

ACCURACY (error minimisation) > **PROFICIENCY** (mistake minimisation) > **FLUENCY** (slip free language)

Obviously, fluency tends to be a measurement of native language use. L2 assessments are measuring primarily *accuracy* and *proficiency* of language. Although the terms *competence* and *proficiency* are frequently used synonymously, they are not synonymous and competence is hyperordinate. Chomsky (1965) first made the distinction: <u>proficiency</u> is what you can do with the language and <u>competence</u> is what a person knows about language. Assessment tests should be explicit as to what they measure because proficiency (and accuracy) are more difficult *since L2 learners do not produce as much as they know about their L2* (Paul, 2001). Although both receptive and expressive skills are important aspects of language to be assessed, they may categorise L2 users in different levels. This is important to bear in mind because expressive tasks, when used for assessment (i.e. in this thesis, writing narratives was used as assessment test of deaf students' L2 abilities) are always the harder to execute.

Despite the continuum of L2 progress, assessment tests are designed in terms of categories because they are *measurable* and consequently provide the necessary validity and reliability that tests should have when applied to large populations. The criteria describing each category can be very broad or very specific, based on linguistic achievements or the pragmatic use of the L2, and that is why the different scales come up with different number of stages. For example, the assessment used by Varlokosta & Triantafillidou (2003, to appear) is an example of copious setting of criteria setting focused on specific linguistic characteristics of the syntax of sentence formation from learners of Greek as L2. Only a fragment of the criteria that defined the language groups are the following:

Beginners:

NOUN PHRASE: Ability to differentiate definite/indefinite articles and number in noun but problems with grammatical gender. Ability to differentiate nominative and accusative but not possessive case.

SENTENSE CONNECTION: Use of simple main sentences. More coordinated sentences. Few subordinated sentences. Rare temporal (when/ since), causal (because), hypothetic (if). Absent indirect speech

Intermediate

NOUN PHRASE: Ability to differentiate between nominative and accusative is perfect. Possessive is good but errors in agreement of noun-gender and its modifications.

SENTENSE CONNECTION: More subjunctives in more forms (negations/ questions). Coordination with more variety (i.e. "but". "or"). Subordination: becomes more complicated with the use of connectors such as: "as much", "whenever", "because of".

Advanced:

NOUN PHRASE: Possessive case in plural is possible. Superlatives are possible. Still a few errors in agreement of adjectives-nouns and articles-nouns in gender and number

SENTENCE CONNECTIONS: Use of complicated structures and more productive relatives. Adverbial phrases with more complicated connectors. Use of productive indirect speech.

The above criteria are language specific, i.e. cannot apply in a language other than Greek. But criteria can also be general, like the ones described from Tamis (2001), when assessing Greek L2 learners, in a four-stage scale:

> *First Level*: ability to understand basic elements of the Greek language and culture, and produce simple constructions especially in speech.
>
> *Second Level*: systematic cultivation of both written and spoken language, express ideas from simple Greek texts, form communicative competence in personal matters and matters of the immediate environment as well as matters of practical utility.
>
> *Third Level*: ability to exchange critically and analytically, information, opinions and experiences with other users of Greek language. Language ability can become dialogic, expressive and can have a psycholinguistic and social function.

Fourth Level: ability to analyse, comment and criticise texts of Greek literature and literacy. Mature possession of and advanced social interaction with the Greek language.

Although more abstract and more susceptible to subjective interpretation, these criteria can be applied easier as principles to assessments of different languages and require less training of the assessors (for extensive analysis on L2 assessment measurements see Damanakis, 2001).

In the present study, the undisputed L2 of deaf students is the written language of the hearing community (i.e. written Greek). The disputed L2 language is GSL and its assessment will be discussed in 4.3.2. The criteria set for measuring the proficiency level of deaf students' writing in this study were a mixture of specific linguistic measurements, as well as global assessments. Assessment of L2 Greek is described quite well in different populations, some of which are comparable to deaf students. For example, in populations with a L1 of a low status in Greece such as Albanian (Varlokosta, 2002; Varlokosta & Triantafillidou, 2003, to appear) and in populations with a minority low status language without literacy such as the Roma people (Daltas, 2001) or other special populations such as the Pomaks and Muslim minorities. The criteria and measurements used in this study were designed according to the above studies.

3.3.2.2 Instruments

There are different ways to collect information on somebody's L2 proficiency. The instruments (i.e. the tests and the assessors) can combine in multiple ways to give us different perspectives of assessments. For example, we can collect information using standardised tests, teacher observation and/or research observation (Paul, 2001). Obviously, the type of instruments used will affect the degree of formality of the assessment. There are situations where, in the absence of standardised tests, informal assessment is unavoidable (i.e. GSL, as well as deaf writing as a product of deaf bilingualism, fall in this category totally). In fact, it has been argued that informal assessment may be fairer for language minority students, exactly because only a few tests have been standardised according to these languages. This is especially so when

these minority languages are oral and are therefore used in a non-academic context (Paul, 2001).

An important issue is that in special education, we need to know the level of both the oral and the academic use of language, given the dependency relationship between the two. Assessing L2 writing, as well as using L2-writing as assessment, should not be considered an unnatural task of language measurement anymore. The type of writing is what makes the difference. For example, writing narratives, as opposed to constructing grammatical exercises, involves context, organisation and audience (purpose). This makes it an excellent method of assessment that can refer to natural, communicative situations and to global language situations (Paul, 2001). It is not true that oral language is always more dominant (and therefore fairer to assess) over other language uses such as writing. It is possible that some bilinguals' dominant language is actually the language they are writing in, which may be their L2 (i.e. academics whose written work is done in a L2).

Assessment is a challenging task. On the one hand, it requires a great deal of designing, standardisation and technical research before it is implemented. On the other hand, it is such an imperative parameter that one needs to apply whatever is available at a given time. There are many situations for which assessment is sparse, either because the languages are not adequately described as already mentioned (i.e. many minority languages and sign languages) or because the population is very varied as to the language product (i.e. specific language impairment population or special cases of bilingualism such as sign bilingualism).

3.4 Bilingual writing

How bilinguals construct a text is an area of research, which lacks a theoretical model. It is true that even L1 writing lacks a strongly predictive model[10] that mainly

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[10] Two well-quoted models on L1 writing are those of Fowler and Hayes and Bereiter and Scardamalia (Grabe, 2002; Larios, Murphy, & Marin, 2002). The first predicts a three-step process of *planning, formulating* and *revising*. The second describes two qualitatively different processes, which

describes processes. An effort is made though to develop L1 and L2 models that not only account for processes, but also examine other parameters fundamental in writing such as genre, discourse, social context, motivation, purpose and audience. This will help answer questions like: Why are some writers better than others? Why some genres are easier than others? Why is writing and reading so strongly related (but then many good readers are not necessarily good writers)? On what level (information, structural, grammatical) do the skills of writing L1 transfer to L2? The question is how a model of L2 writing will differ from that of L1 and, consequently, whether we need one.

It seems that the two models will greatly overlap in terms of process of planning and producing, but there are a few areas that are specific to a L2 writing theory: a) the issue of *voice* and *identity*, where L2 ways of discourse may contrast with L1, and b) the type of interaction of L1 with L2 which forms the ultimate product. The first applies to an area in L2 writing remote to the interests of this research. However, the second is relevant, as it is concerned with the applications in teaching L2 writing. This is because, in teaching a L2, the default case is to start teaching via L2 reading and writing and so L2 writing becomes identical to L2 itself (Bergstorm, 2002).

Research on L2 writing can be divided in two groups for convenience: those that look into *L1 and L2 writers* and compare in which ways they differ and those that look into the *same L2 writers* performing in different tasks (a method used in the present study). Larios Murphy, & Marin (2002) quoting Cumming hold that the second design is more valid than the first one. Both methods are justified though, depending on what they are looking at: for example, the first focuses on cognitive processes, whereas the second focuses on the product or the effects of a specific technique. As far as L2 process is concerned, findings show that L2 writers differ from L1 writers, in that they pause longer on word, clause and sentential level than the L1 writers, which shows pressure at lower levels of text formation (Miller, 2000). Also, L1 writers take a top down approach, whereas L2 writers follow a bottom up

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predict the differences between writers: the *knowledge-telling* and the *knowledge-transforming* dichotomy.

approach (Larios et al., 2002). As far as L2 products are concerned, findings are as follows.

A first finding is that during writing, many processes occur at the same time: decisions on information, meaning construction, language formation, editing the product and constant monitoring of the process (Silliman et al., 2000). L2 writing is even more complicated because some of the above processes are facilitated by the writer's L1 and others from the existing L2 skills. A second finding is that the less proficient an individual is in one of the languages, the more use is made of the other, since the writer is forced to pass on the message, even where the correct forms are not known. Resorting to the L1 is one strategy L2 learners use, as well as other strategies like guessing, avoidance, or overgeneralisation (James, 1998; Lightbown & Spada, 1993; Mayer & Akamatsu, 1999). A third finding is the relation between literacy in L1 and literacy skills in L2, (which was discussed in 3.2). Research shows that oral skills in L2 facilitate writing in L2, but oral skills in L1 may not (Kobayashi & Rinnert, 1992; Mayer & Akamatsu, 1999). This particular finding is extremely important for bilingual education and deaf education as it challenges the necessity of L1 involvement in its communicative form. As an answer to this, some research findings claim that L1 is less related to learning the form of L2 than it is to support a metacognitive level, including constructing meaning, negotiating meaning via meaningful communication, deciding on how much information, what kind of information and how to transmit the information (Cook, 2001; Wang & Wen, 2002).

A difficult case to investigate in L2 writing is the code switching activity that is so widespread in live bilingual communication. Some academics believe that code switching is minimal in the written medium (Wei, 2000). For others, the process of code switching in writing exists, but is masked under exact translations/transliterations of single items or whole pieces of text, which only become obvious when you switch scripts (Angermeyer, 2003). Others believe that code switching occurs equally in L2 writing, but depends on the formality or informality of the text and usually requires a high level of bilingual proficiency (Jayantilal, 1998). For example, a study on the writing of Chinese/American bilinguals revealed code switching in single items and whole phrases mostly when writing to bilingual friends and family. Code switching was used mostly for the

purpose of quotation, exclamation and emphasis (Wu, n.d.). Code switching may also occur in deaf students' writing, but little has been said as to how it can be detected.

A special mention should be made regarding the effect of different tasks that L2 writers are subjected to and how these affect their performance. The two tasks that are the most typical bilingual experiences in writing are *translation vs. direct writing*. These are the same two tasks that the present research has opted for.

3.4.1 Translation vs. direct writing

These two tasks have been manipulated differently in various experiments. It is acknowledged that translation, despite its advantages, is a task more burdened than direct composition and is a field of investigation on its own right. A few words on translation will make clear why.

Languages differ from each other in terms of form, rules for constructing sentences and discourse structures. These differences influence the way meaning is rendered. So, when translating a text, there are many subtle ways in which the translator can render the meaning from one language to the other. The same text therefore may be reproduced completely different by different translators. Another issue with translation is that a simple one-word utterance in one language requires a multiple-word sentence in the other and is therefore less easily rendered in that language (Malakoff & Hakuta, 1991). Usually, bilingual people have intuitions about which structures of the two languages do not coincide.

Translation skills are usually taken for granted as an aspect of bilingualism. Yet this is far from truth. Many bilinguals face difficulties in translating, especially when writing. The processes underlying translation are different from those underlying speaking, understanding, reading and writing two languages. Translation in the written mode can pose problems to the translator, since the message is decontextualised and contained entirely in the text. Researchers have reported

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difficulties in translating oral narratives into writing (Hamers & Blanc, 1989; Neethling, 1997). Neethling (1997), for example, believes that oral-to-writing translations suffer from a neglect of their paralinguistic and non-verbal features.

An under-researched area in the psycholinguistics of bilingualism is translation by children. Malakof & Hakuta (1991) did an interesting study on the communicative aspects of translation. This kind of translation, which is called natural translation because it is made by naive translators whose knowledge of linguistics, is very limited, is usually the norm for primary school children. In their research, they found that meaning is communicated, despite being embedded in poor sentence structure, and translating from written source language to written target language was the most difficult task compared with other tasks, which included oral input or/and output. In writing there was more transfer (i.e. there was more use of L1 to L2 structures), which suggests that writing is a demanding task as it required more reliance on the L1.

As far as direct composition in L2 is concerned, much of the above is apparently missing. "Direct" assumes direct access to L2. If L2 proficiency does not allow that, then the L1 is summoned and direct composition may resemble to translation. Especially on the level of planning and revision, L1 is important in its influence. The problem with direct composition therefore is that we do not know how "direct" it is. For example, one of the classic studies in translation vs. direct composition is that of Kobayashi & Rinnert (1992). They studied Japanese students with English L2 who wrote an essay in L2 (direct composition) and an essay in L1, which then translated it into L2. The students were arranged into groups according to their L2 proficiency and the results showed that translation facilitated L2 writing, particularly in cohesion/coherence, content, organisation and syntactic complexity of the texts but *only for the low-level students.* The higher-level students did not benefit from translation and produced better direct composition texts. The researchers explained that low-level students can "benefit from intervention and exploration of ideas in their first language especially in the prewriting and planning stages" (p. 204). They also found that oral knowledge of the L2 correlated significantly with the quality of the written text. The explanation is that there is a point where too much dependence on the L1 may inhibit L2 performance. Kobayashi & Rinnert's results suggested that

translation and direct composition are facilitating different aspects of writing and interact differently with L2 proficiency.

Another well-quoted study on the area of translation vs. direct writing is that of Uzawa (1996) who studied Japanese with English as L2 in three tasks: direct writing in L1, direct writing in L2 and translation from L1 into L2. The results showed that direct writing in L1 and L2 did not differ in process, but translation required more attention to language use and achieved higher scores. Once again, it was the low-level students who seem to benefit from the translation task; the author explained this as translation "pushing" for more use of accurate and challenging language. The opposite happened with the direct L2 writing task, where they used only words that were immediately accessible, thus lowering the level.

Research on the translation vs. direct writing issue is more or less unanimous. Translation and L1 involvement seems to benefit low-proficiency students. In general L1 offers valuable contribution in planning, organising, idea generating, in particular to low and intermediate students, even contributes in selecting proper linguistic material such as vocabulary. Target language seems to be more appropriate for the on-line formation of the text. These findings provide an important insight into deaf L2 writing, especially regarding *how* to evaluate deaf writing: instead of focusing only on the surface errors, we also have to look into the organisation and structure of the story. If we place deaf education in a bilingual context, we need to apply methods that have been used with hearing bilinguals and see if there is an analogy that will support the bilingual nature of deaf writing.

3.4.2 Error analysis

Error analysis is described as a methodology of treating data. The present study has followed an error analysis methodology, so an overview of this method will now be presented. The foundations of error analysis are the concept of error, the concept of source of error and the categorisation of errors.

As for the first one, the classic trichotomy of language misuse was mentioned before in 3.3.2.1: "error>mistake>slip". What distinguishes an error from the others is that it comes from a *gap of knowledge* and therefore it is *consistent*. James (1998) explains:

> "We can now refine the definition of **error** as being an instance of language that is unintentionally deviant and is not self-corrigible by its author. A **mistake** is either intentionally or unintentionally deviant and self-corrigible" (p. 78).

The context within which the error is made is very important. Errors can appear to be grammatically correct, but are completely inappropriate within a particular context. Discourse analysis reveals such instances to occur because of positive L1 transfer and they are known as **covert** (unacceptable) errors as opposed to **overt** (ungrammatical) errors (James, 1998; Okuma, 1999). A good example of a covert error (i.e. being grammatical but unacceptable) is a common error among Greeks in their English-L2 products due to the transferring of the Greek verb klitic system in the verb-pronoun structure of English sentences. So they say: "We went with my sister to eat" when they mean: "We, (i.e. me and my sister) went to eat". In English though, that is grammatically correct but semantically wrong since it means: "We went with my sister (i.e. me, some others plus my sister) to eat". The present study is concerned with the unintentional *ungrammaticality* (within the language rules) and *unacceptability* (within a given context) of L2. Both have been taken into consideration in the current design.

The source of errors is another basic area of error analysis and many researchers have listed various sources (AbiSamra, 2003; Sofer & Raimes, 2002) the most common of which are:

> **Interlingual errors** or errors caused from L1. These are caused by the transferring of patterns from the native language to L2. *Transfer* can be positive, as well as negative, also called "interference". It is true that interlingual errors are usually favoured by low-proficiency learners and they tend to fade with the gradual L2 improvement. Typical examples of interlingual error are the exact translations or the use of cognates in inappropriate contexts known also as "false friends".

Intralingual errors or errors caused from the structures of the target language irrespective of the native language. These errors have also been called *developmental* or *acquisition errors* because they are found in L1 and L2 acquisition as well as contact languages. Research has shown that this is a great source of errors, probably greater than L1 transfer, particularly with the intermediate and proficient learners (AbiSamra, 2003; Penny, 2001). The most celebrated expression of intralingual error is *overgeneralisation*, an assumption that a rule has no exceptions. Another technique is *redundancy*, which is a characteristic of all languages and ensures the message will be transferred even if some rules may be violated.

Intralingual errors also are various *compensatory* strategies that L2 learners use to discover the structures of their new language (Mayer, 1999, Lightbown & Spada, 1993). These errors are not consistent in nature and seem random and arbitrary, but they usually occur in grammatical structures where there is not direct mapping between the languages or where the grammatical structure to be expressed is not "obvious in the world" (see below: *errors of universal difficulty*).

Communicative errors, which are due to the approach the L2 users take when they face a problem (James, 1998). The typical approaches are the top-down and the bottom-up. Errors caused from the top-down approach are *efforts of approximation of meaning*, that is, giving synonyms and substitutes and making assumptions about what could the closest meaning be. Errors caused from bottom-up approach are *efforts of circumlocution*, where the L2 users make references to the inaccessible item by referring to its attributes. It is believed that communicative errors are very serious because they are global and affect the whole text (Corder, 1967).

Teaching-induced errors are all these errors caused from the classroom setting such as: teaching material contents[11], task induced errors[12], teachers' methods, and exercise/drill errors.

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[11] An interesting study has shown that the writing of L2 students is only as good as their literacy materials (Abadiano, 1995). Abadiano showed that the cohesion strategies used by African American and Apalahian students are strongly correlated with those found in their literacy materials.

Errors of universal difficulty. According to Slobin (1996), there are structures in every language that are found in the real world experience, while others are purely linguistic constructions. This suggests that there are "easier" structures to be learned and others that are more "difficult". For example, if plurality were absent from the learner's L1 structure, it would not be hard to use it in his L2 communication since plurality is easy to be experienced. But other structures, such as aspect in verb constructions, are not experienced in the real world and are difficult to be mastered from L2 learners, especially if their L1 does not have the equivalent structure and transfer is not possible. This source of errors has not been much identified in the EA, mainly because there is not much agreement on what constitutes "difficult" and "universal" among languages yet.

Concluding, one should note that errors and their sources are still under research. The above represent estimations of why an error occurred, not certainties. An error cannot fully reveal its inner process nor whether it is the outcome of the working of a combination of parameters.

In view of the above, this thesis will use error analysis as a qualitative method, which **Identifies, classifies, describes** and then **explains** possibilities about the source of errors. Explanation is just estimation and the only way to prove it is to track the consistency of the error repeated in the text. Error analysis is a very useful method when one takes into account its strengths and weaknesses.

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[12] Studies also show that tasks can induce specific language style and therefore produce specific errors (Koda, 1993; Schneider, 1996). Even a small variation of the same task, i.e. a picture drawing vs. a photo picture can elicit differences in writing (Cole & McLeod, 1999).

3.5 Summary of "Bilingualism"

The past chapter has attempted to cover a vast area, that of bilingualism. The focus was particularly on theories of bilingualism, bilingual education and bilingual writing. Bilingual theories were explored as part of defining deaf students as bilinguals by highlighting their language processing as being similar to that of other known bilingual populations. Bilingual education was explored in the light of its recent application to deaf education, and in addition some controversial results in hearing contexts were presented. Particular areas of teaching practice were raised, where L1 is used to teach the L2, and the assessment of L2 products. These two areas are directly connected with the justification of the methodology of the present study, assessment as it provided the basis of the criteria for what is regarded as "poor" and "good" language and how language has been evaluated in the general bilingual literature. The last area to be reviewed in this chapter was bilingual writing, specifically how to analyse bilingual texts. Error analysis was introduced, as the method that will be used in analysing the data as well as interpreting them.

4   THE WRITING OF DEAF BILINGUALS

Most of the areas related to deaf literacy have now been covered. In this chapter we will explore the relationship between deafness, bilingualism and literacy development.

4.1   Deafness and bilingualism

Increasingly in the literature, deaf people[13] are considered bilingual. In reality, this is not always the case. Their exceptional language acquisition makes them a very heterogeneous bilingual group. There is a continuum starting from oral deaf people to deaf people who only sign. In between, it is not just a shift from orality to signing, which takes place. There are many cases of deaf individuals never having acquired either of the two languages until very late and actually being proficient in neither (see chapter 2). The variability between deaf individuals is great as their language experiences depend not only on a natural input but on a constellation of parameters such as: onset of hearing loss, degree of hearing loss, age that hearing loss was detected, individual characteristics, family orientation regarding language exposure, first educational contact and particular school setting among many others (Bochner & Albertini, 1988; Padden & Ramsey, 2000). Also a deaf person (as already mentioned - see 2.1.1) may exhibit great variability within his/her language behaviour depending, for example, on the context (formal vs. informal), interlocutor (deaf vs. hearing or signer vs. non-signer), degree of proficiency in both spoken and signed language, to name just a few (Bochner & Albertini, 1988).

Despite these considerations there are strong arguments why deaf people should still be considered as bilinguals of a rare kind. One should note that this generalisation refers to a generic deaf population of what is perceived to be the majority. As Paul

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[13] The term "deaf people" refers to the 95% of those who come from hearing families. Because of the rarity of native deaf people, reference to this population will be specific.

(2001) says "there is no simple, all-encompassing reason why [...] most spoken language and especially phonetic languages, are problematic for many deaf and hard-of-hearing students" (p. 2). Therefore the bilingual generalisation assumed here does not include the few cases that are successful in acquiring intelligible spoken language or the cases of post-lingually deafened individuals, although we must acknowledge they exist.

The first argument for considering deaf people as de facto bilinguals is that the characteristics of language acquisition in the majority of deaf children seem to be similar to those of hearing children learning a L2 in that the language acquisition process is more of a problem solving exercise than a natural event. Deaf children learn, rather than acquire, their language. *Language acquisition* occurs with no conscious attention to form and in a naturalistic way (Fraser, 2001; Lightbown & Spada, 1993). Learning a language rather than acquiring a language involves a conscious attention to form as already mentioned in 3.2. Most deaf people have devoted an unusual amount of attention to language learning, which more closely resembles the L2 learning process than the acquisition of L1.

Despite this view of deaf people as bilinguals, most researchers are cautious in drawing analogies with hearing bilinguals. It seems that this analogy is most appropriate in a subset of deaf people, i.e. deaf children of deaf parents. Wilbur (2000) says that: "these children (i.e. deaf children of deaf parents) are more similar to hearing children who must learn to read and write in a second language" (p. 82). However, Swanwick (1999) cautions that grouping deaf children with hearing L2 learners is problematic and may even undermine the principles of sign bilingual education: i.e. we cannot take for granted that deaf children can use knowledge of sign language for academic purposes. Sometimes research is not clear how to treat deaf bilinguals with respect to their nativeness. For example, Fraser (2001) compared the writings of deaf people "who had sign language as their L1" with hearing English-L2 writers however none of her deaf participants came from deaf families.

A second argument in support of the view that deaf people are bilinguals by nature, considers that a spoken language is always *at least* a L2 and additionally is an unusually difficult one to acquire. Paul (2001) explains that there is a significant

difference between hearing bilinguals and deaf bilinguals. The L2 for a hearing bilingual may be a code that has not been fully acquired because of <u>inadequate</u> <u>exposure</u> to it (i.e. situations having to do with resources and opportunities of exposure). The L2 of a spoken language for deaf individuals is an issue of <u>incomplete exposure</u> to the code, which has to do with the conveyance of the auditory-based signal itself. That is why deaf people are naturally oriented to visual communication, which for the majority may be the only opportunity to acquire a natural fully-fledged language. Deaf people therefore form a *unique group within the phenomenon of bilingualism.*

Another characteristic, which adds to the rareness of their bilingualism and literacy achievements, is that sign language does not have a written form[14]. Deaf people become literate through the language of the hearing community to which they belong. In other words, deaf people are bilingual but not biliterate. Indeed L2 acquisition for deaf people is almost always the acquisition of reading and writing.

4.2   Deafness and education

Deaf education, like hearing bilingual education, has been an area of dispute in relation to method and communication mode. A variety of methods have been applied, each with varying results. There were two chief approaches (and numerous combinations) before sign bilingualism was introduced in the 1990s.

Oral/aural education is the method that has dominated most of the time and still does in some respects. Oral/aural method is an umbrella term that covers a variety of approaches focused primarily on speech training and hearing amplification. These include for example the "natural oral approach" which enhances spoken language via

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[14] Two things must be noted here. Firstly, languages without literacy do exist in societies around the globe. This is becoming less and less frequent either because these societies become marginalised or because they adopt another culture's literacy. Secondly, there have been efforts to create written forms of signing, e.g.: sign writing in USA (*Writing by hand*, 1997), or Nicaragua (Brooks, 1996, March 17). Nevertheless, the existence of a written form is not an adequate condition for a language to be considered literate. A literate language is one, which has treated language as an object of attention, escaping from its primary conversational function (see chapter 1).

conversation and meaningful discourse, and "structured oral approaches" which try to enhance spoken language via more planned teaching and language drills (BATOD, *Communication modes*, 1998). The goal of these methods is intelligible spoken language and therefore great emphasis is put on the use of a variety of tools such as amplification equipment, hearing aids, cochlear implants, lip reading, etc. This emphasis on residual hearing and spoken language inevitably under-stresses the use of visual support, although oral/aural methods can employ some multisensory aid. Conscious use of visual support may also be used particularly to teach the written language of speech (Watson, 1998). The strongest point of this method is that as literacy development relies heavily on phonological coding of the spoken language, drilling deaf students into speech may help them develop a phonological decoding system to assist literacy. The weak point is that *oral/aural education* has not produced good results in school, although this is debated by some scholars (see Lewis, 1996). Powers, Gregory, & Thoutenhoofd (1998a), in an up-to-date literature review on deaf education, report apparently good results of oral/aural methods, although questioning the representability of the samples used.

The second method ever used in deaf education is *total communication*. Total communication (or TC) has often escaped precise definition and according to The British Association of Teachers of the Deaf: "...there is variation in its interpretation and use. It is seen as a flexible approach to communication in which children may vary in how they receive and express language. Therefore, in those establishments which espouse a TC approach, a variety of different modes may be used, e.g. Aural/oral communication, BSL, SSE, fingerspelling" (see BATOD *Communication modes*, 1998). This method therefore recruited all available means such as speech, gestures, fingerspelling, sign systems, sign language and cued speech in order to realise its educational goals. Although still working on students' speech and listening skills, students are also encouraged to develop other communication skills (Zapien, 1998). The strong point of this method is that it accepted that for many deaf students, their inner language may not be a speech-like language. Also it proved to be a more compatible method for students encountering difficulties with oral methods. The weak point is that academic achievements continued to be low with this method, (Powers et al., 1998a) although some researchers have reported improved literacy levels (Delaney, Stuckless, & Walter, 1984; Moores & Meadow-Orlans, 1990). This

may be because students were not exposed to the complex inner workings of a consistent language input such as spoken English or sign language and therefore were unable to reach proficiency in any mode.

The sign bilingual method is the most recent approach in deaf education although it is not yet fully implemented. It arose out of the increasing concerns that oral/aural and TC methods were not meeting their goals. The sign bilingual or bilingual-bicultural method assumes that sign language is biologically the only compatible natural language for a deaf person. Therefore sign bilingualism proposes that deaf education will achieve its goals with greater success if we teach sign language first as a base language and then the written form of the language of the hearing community via the already established sign language. The rationale is similar to that adopted by hearing bilingual education approaches. However, the goals of this approach are different from its predecessors. The goal is to ensure a solid functional L1 basis via signing as well as to culturally define and protect the identities of deaf people (Grosjean, 2001). At the moment of writing, the most pervasive disadvantage of this method is the availability of sufficient native deaf adults able to make proper use of sign language in an academic manner and also serve as role models with regard to the cultural aspects of deafness.

The academic outcomes of the sign bilingual approach have not been widely reported, as it is relatively new (Paul, 2001; Swanwick, 1999; Turner, 2000). One way to evaluate the sign bilingual method is by exploring current issues in bilingual hearing education, as already done in chapter 3.3. Another way is to generalise to the use of both sign language and written language, from other reported sources: for example the academic success of deaf children of deaf parents, compared to deaf children of hearing parents (Gregory, 1996) as well as the successful promotion of communication between deaf students and teachers by using sign language, which facilitates interaction in educational context. (Mayer & Akamatsu, 1999; Rodda & Elewcke, 2000).

Regarding the cultural goals of the sign bilingual approach, it has been reported that sign language can promote deaf awareness and empowerment if introduced formally in the class. This may have a positive effect on both academic achievements as well

as the development of identity. As far as the positive academic achievements are concerned, it has been claimed that when deaf students are taught by successful native deaf adults who use sign language fluently, this provides youngsters with deaf role models to relate to, which may enhance their positive self-identity and their positive attitude toward sign language (Powers et al., 1998a). This is of importance, since literacy failure among bilinguals is connected to attitudes about minority languages. If the minority language is highly valued, this has a positive effect on the overall academic process, whereas the opposite happens if the minority language is considered "poor" (Lightbown & Spada, 1993).

As far as culture and identity are concerned, the use of sign language in deaf education is almost imperative (Grosjean, 2001). Deaf people do not define themselves using a medical deprivation model (i.e. that of deafness) but through a cultural-minority model, where its members are united via common life experiences, customs, survival techniques and language. For deaf communities, it is sign language that is the central factor uniting the community (Bochner & Albertini, 1988). In sign bilingual education, sign language needs to be advocated first of all to deaf people themselves because it takes them out of their isolation and offers the sense of belonging to a well-defined community. However, the introduction of sign language to deaf education without the underlying cultural/identity aspects may not bring about the desired positive result. Cummins (2001) believes that coercive powers may operate in a bilingual context as successfully as in a monolingual one. If the minority language is not introduced in a manner that affirms and values the experiences and culture of the community that uses it, then bilingual education only perpetuates the notion of the superiority of one community over another.

However, the use of sign language in the classroom is not wholly straightforward. The different language acquisition experiences of deaf children mean that sign language is not always the deaf child's dominant language and its acquisition is heavily influenced by the attitudes of the family to sign language, deafness, early intervention and other factors, which are absent in typical language acquisition (Paul, 2001). The relevance of the bilingualism debate on sign bilingual education, therefore, is connected *not with the use of L1 in teaching an L2* but *whether in teaching a target language, another language should be involved.* Also a

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constellation of other parameters renders sign bilingual education difficult to evaluate or compare with other bilingual practices in hearing bilingual education. Some of these issues are: the accurate description of sign language, which requires: *a.* extensive research on a small fragment of the deaf population[15], *b.* designing a sign bilingual curriculum; *c.* training hearing and deaf staff in sign bilingualism; *d.* applying early intervention to deaf children as they are a high language risk population and *e.* working with families[16] (Gregory, 1996; Powers et al., 1998a). From the above it is clear that deaf education is a combination of both sign bilingual education (first three points) and special needs education (last two points) and just the application of a sign bilingual setting may not produce the desirable results.

4.3 Deafness and writing

It is widely accepted in the deaf studies research that deaf children's literacy development is very poor compared to their hearing peers (Mayer & Akamatsu, 1999; Yoshinaga-Itano & Downey, 1996). For decades the standard literacy level of deaf school leavers has been comparable to that of 9 or 10 years old hearing students (Turner, 2000).

In the '70s research focused on deviancy in the written language of deaf students compared to their hearing peers and most of the description of the language products comes from these accounts (Ivimey, 1976; Ivimey & Lachterman, 1980; Quigley, Wilbur, Power, Montanelli, & Steinkamp, 1976). These reports have revealed poor linguistic performance of deaf students in understanding and producing sentences, a tendency to produce simple sentences rather than complex and compound ones and great difficulties with verb constructions. However, they also pointed out that despite its deviance, the language produced was rule-bound and these rules were consistent in nature (Ivimey, 1976).

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[15] i.e. the "native deaf" group ideally coming from a second or even third generation of deaf families. Even when this condition will be met, the question is how relevant will this be to the education of the rest of the deaf majority.

[16] E.g. the hearing screening that is applied to newborns and which in the near future will become compulsory practice in the U.K.

In more recent years there has been progress in linguistic science as well as a shift in attitudes towards the deaf world. The inconsistencies and deviations found in deaf students' performance are now more likely to be explained taking into account various parameters. One is the teaching methods, which often prove to be inappropriate for deaf students and fail to take advantage of the visual channel available (Christie, Wilkins, Betsy-McDonald, & Neuroth-Gimbrone, 1999; Rodda & Eleweke, 2000). Another very crucial parameter is the very few assessment tests that have been designed up to now to measure sign competence and/or literacy skills as aspects of sign bilingualism (Powers, Gregory, & Thoutenhoofd, 1998b). Teachers rely on their experience to determine students' performance (Yoshinaga-Itano & Downey, 1996). The reading/writing assessment tests used in deaf education and research are standardised on only one of the two linguistic systems in which deaf students are exposed to, i.e. that of the hearing community (Powers et al., 1998b). A third parameter is the errors in deaf children's language productions resembling those of students learning a L2 (Fraser, 2001). Research methodology in deaf studies now takes into account the bilingual nature of deaf people's language acquisition. This means that deaf people are no longer compared with hearing monolinguals but with bilinguals of similar language experiences. Furthermore, parameters are being discussed such as the nativeness of deaf subjects (i.e. deaf children of deaf parents or not), the existence of literacy in the L1 of the hearing population, etc.

The mastering of reading and writing by deaf people is considered a bilingual process. However, this perspective poses new problems. First, *not* all of the errors deaf writers make can be explained by the interference of L1. Many of the strategies that L2 learners use cannot be applied in the case of deaf writers (e.g. use of cognates) due to the different modality of the languages. Also there are projects, which report similar errors among deaf students regardless of their sign language exposure (Swanwick, 1999) and which may be indicative of their visual perception in general. In an experiment, Fabbretti et al (1998) compared the writings of native deaf signers of Italian Sign Language (DD) to two control groups: hearing signers of deaf parents (HD) and hearing people with no contact to sign language (HH); both groups' schooling was defined as poor. The results showed that the DD group produced significantly more nonstandard forms of errors than HD and HH groups.

The most frequent nonstandard forms were grammatical and morphological omissions, followed by grammatical morphological substitutions, lexical substitutions and grammatical and morphological additions. Another difference was that DD produced more linguistic nonstandard forms while the HD and HH produced more orthographic nonstandard forms of errors. Also the DD group displayed more errors on Italian free-standing function words than on bound morphology. The authors explain their findings as follows:

> "...[the] difficulties in the acquisition of written Italian are best explained by deafness itself, and not by the influence of a previously acquired Sign Language. [...] In particular deaf people have specific problems with those parts of speech that are identifiable only through the acoustic channel and for which no other channel can play a similarly reliable role. Italian free-standing morphemes are short items that tend to convey relatively little semantic content in their own right. [...]. Also many Italian morphological forms tend to be produced rapidly and with low stress in fluent oral discourse. It is possible to pick many of or most of these forms in skilled lip-reading but is far from easy. This state of affairs may mean that deaf speakers of Italian are often failing to receive and encode morphological markers. Their input may thus consist much of the time of "islands" of content words in properly sequenced syntactic frames." (p. 242).

Similar results were obtained by Ajello, Marrota, Mazzoni, & Nicolai (2002) who examined the speech and writing of expert but not native signers of Italian Sign Language. They also found free morphology to be worse than bound morphology in their productions and that in general morphology was a weak point compared to lexical competence. In addition they observed generalised present tense, omission of main verb, and lexicalisation of grammar (e.g. plurality was indicated by a numeral word or tense by a temporal adverb). They argued that deaf writers do make same types as found in L2 errors but unlike L2 writers they make more morphological ones. Their explanation is the problematic L1 acquisition and the fragmented input of L2 for deaf people. The authors say:

> "...the vocal language (...) is learnt mainly through an explicit and formal approach, which gives as a result a system of rules which is never completely internalized. [...] The process of learning is based mainly on general, not

specifically linguistic, cognitive mechanisms, as is apparent from the discrepancy between a fairly good lexical competence and a poor morphological competence heavily dependent on the input, and a similarly poor syntactic competence which relies fundamentally on pragmatic communication principles" (p. 73).

A further problem is that writing is connected to oral speech especially via phonological processing so the way to deviate phonology is unknown. It has been shown that deaf people despite their inaccessibility to sound, can be sensitive in phonology for example in rhyme and homophony (Musselman, 2000; Sutcliffe, Dowker, & Campbell, 1999). However, research also showed that orthographic (i.e. visual) rather than phonological processing is easier to them and that they also use alternatives to phonological processing methods such as articulator processing (i.e. based on speech movements or fingerspelling) to compensate phonological processing (Musselman, 2000; Transler, Leybaert, & Gombert, 1999). Research is still not clear on how deaf people acquire printed literacy and the speculation is that they use a mixture of processes. Whether phonological processing is a prerequisite or an outcome of learning to read, is something yet to be determined and there is some literature suggesting that phonological processing is not a determining factor in literacy acquisition (Scholes, 1998). Most of the studies advocating that phonological processing is not necessary in literacy acquisition are based on populations that acquired literacy late in life and the Chinese paradigm.

The Chinese paradigm is connected to the deaf population on the grounds that writing can be approached visually without phonemic awareness. Chinese script is described as logographic hence it is possible to read a script without speaking the language. First, one should mention that there is a controversial literature on whether the Chinese language being logographic means it is semasiographic i.e. independent of the spoken language. Researchers have argued that even logographic scripts contain phonemic information albeit minimal (Ho, 2002; Musselman, 2000). Also

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the question arises as to the level of phonemic awareness to which each script demands our attention[17].

But even if phonemic awareness is not crucial to process logographic script, what is the relevance to the deaf population of the present study[18] and other western world deaf communities who use an alphabetic script? More relevant to these deaf populations are studies such as that of Scholes (1998) who claims that phonological awareness is the consequence rather than the prerequisite of acquiring literacy in alphabetic script and for this reason should not be such a great issue in deaf literacy. The Chinese argument therefore is not isomorphic to the deaf population who write in alphabetic script. Also the deaf population is not like the speakers of Mandarin and Cantonese who are mutually unintelligible but manage to read the same script: the writing systems of both their spoken language, are more or less logographic.

As a last note we must acknowledge that the writing of deaf people could indeed look more like L2 providing we control more complex parameters related to the attitude to literacy and literacy practices adopted at home. These are areas that certainly need to be boosted because academic success "not only depends upon 'literacy-rich' home environment, but also, parental interaction that proceeds beyond asking simple controlled questions (i.e. those requiring short, literal answers) and which engage children into meaningful discourse" (Paul, 2000: p. 7). This is an area of enormous importance and complexity that unfortunately could not be addressed in the present study.

4.3.1 Using sign language to teach deaf students literacy

Little research shows that sign language is facilitative in learning the written form of L2. But research does suggest that sign language facilitates cognitive skills. For

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[17] Phonemic awareness is multilayered e.g. can be phonemic, sub-syllabic, syllabic level etc. (Dahlquist, 2002).

[18] It would be interesting to know how the Chinese deaf writers, are coping with a logographic writing system. If they have the same competence as the hearing Chinese writers then the whole writing process does not tap at all on the issue of deafness as previous researchers have proposed (Ajello et al., 2002).

example research on deaf children of deaf parents compared to deaf children of hearing parents, show an advantage in academic success (Gregory, 1996). This does not necessarily prove that the properties of sign language as a linguistic system have supported this success. There are studies for example where deaf students from deaf families do not necessarily outperform their deaf peers from hearing families (Koutsoubou, 2002; Mparlou, 2000)[19]. It has been argued that there is a constellation of parameters working together such as the beneficial psychological effect and self-confidence that results from expressing their needs, wills, thoughts in a well-mastered linguistic code; more typical patterns of life experience in terms of their cognitive, linguistic and social environment, and the advantage of having, from very early childhood a tool for developing the capacity to communicate and understand others (Rodda & Eleweke, 2000; Swanwick, 1999).

On another note, Cummin's theory of CALP (see Chapter 3.2) cannot support directly that sign language proficiency facilitates literacy proficiency. The idea of transferring cognitive and linguistic skills across languages (from L1 to L2) and modalities (from oral to written) may be applicable where there is a written form in both languages. Mayer & Akamatsu (1999) state:

> "There is no evidence of a correlation between oral ability in the first language and the subsequent ability to read and write in a second language. [...] If, in other bilingual contexts, there is no correlation between oral ability in L1 and the ability to read and write in the L2, why would we expect to see a linguistic transfer between the ability to sign in L1 and read and write in L2? [...] As native sign languages do not have widely accepted written forms, deaf students cannot acquire these literacy skills in their first language to transfer to the written form of a second spoken language." (p. 2).

Mayer (1999), in a paper about the composition processes of deaf writers, argues that:

> "the strategies and processes integral to writing in a L2, when there is no written literacy in the first, are not well documented or described. Studies have shown that there is a positive correlation or a 'linguistic interdependence' between the ability to write a first language and the ability

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[19] Although these studies only consider individual cases of native deaf students within a small deaf population and are therefore not really comparable.

to write in the second, as *many of the planning processes and thinking strategies are comparable and function efficiently across languages"* (p. 38, my italics).

Her research revealed little interdependence of L1 oral and L2 in writing. Generating a written text in a L2 is a complicated product: thinking about a text does not involve an ordered thinking, but thinking for writing does. Thinking about a text is not tied to any particular language and does not satisfy any linear order, which is the integral characteristic of writing. However, to write down these ideas, linguistic skills play a key role.

It has also been argued that the simultaneous/concurrent characteristics of sign languages are contrasted with the sequential characteristics of spoken-written languages (see Chapter 2.2.1). So the minimal interdependence of the two languages of deaf learners can be explained in terms of their different function: the one (signing) is used in communication and the other in academic tasks. In writing, the first is used for producing ideas and the other for producing the text. Nevertheless these two processes have to co-operate and the degree of co-operation depends on the proficiency in L2. There has to be a minimum level of L2 grammar automaticity so that the content of the text will not be constrained by too much attention to the mechanics and form. The production of a text requires a specific way of thinking: generating ideas, which though has to be limited by the planning of word and grammar choice. This specific way of thinking-for-writing is even more complicated when it occurs in L2 as proficiency plays a central key for the result.

Mayer (1999) investigated the cognitive process of deaf writing. Two deaf writers were observed while writing. Both were proficient in ASL and also enjoyed literacy activities. While writing they were observed using English based techniques such as mouthing, finger spelling and signed English but not ASL. When asked why they did not use ASL they replied:

> Deaf writer 1: "Well if I sign it another way it doesn't match really. Like if I write English (then) sign ASL... Wow, that's hard. Well for me signing (uses the ASL sign for "chat") then writing -it doesn't make sense to me-- it's funny" (p.42),

Deaf writer 2: "Why would I sign? I am not talking to anyone. People would think I was talking to a ghost" (p.43).

It is evident that both writers are aware that writing is a linguistic task, which depends on the manipulation of the linguistic system of expression and not that much on the linguistic system of producing ideas and meaning and the use of mouthing or fingerspelling is proof of that. The use of ASL in the on-line production of a text does not facilitate writing for deaf proficient writers as they have come to understand (through their experience with, and enjoyment of literacy) the minimal interdependence of the two linguistic systems.

The minimal use of L1 in writing texts in L2 is not always the case for bilingual writers. For *less proficient bilinguals* there is a heavy dependence on the L1 to compensate for the lack of knowledge of L2. The meaning has to be expressed despite the lack of linguistic proficiency in L2. The L1 therefore provides not only the ideas but also a linguistic basis from which translation will take place. It is expected that deaf children will use their sign language skills to approach literacy just like all learners of a L2 (Swanwick, 2002). Possibly even more so, because of their inevitable limited proficiency to the spoken/written code. In other words deaf children will try to use mechanisms from sign language to convey meanings in L2. The use of sign language in bilingual education seems to be both unavoidable but also controversial. There are researchers who support sign language employment in various forms in deaf education (Wilbur, 2000). For example it has been argued (Mayer & Akamatsu, 1999) that artificial sign systems (e.g. signed English) "because of their linear mapping with signed language may provide a bridge between sign language and English" (p. 3). Other techniques have an effect on deaf children's reading ability for example cued speech in combination with sign language may help to convey the link between speech and printed words (Paul, 2001). Swanwick (2002) reminds us of the connection between writing and inner speech. For deaf children, it is possible to have an equivalent inner language based on signing. She proposes addressing the use of sign language "as the mediating function between inner language and written language" (p. 68). She also says, sign language use may raise metacognitive and metalinguistic levels. To conclude, sign language in bilingual education can be used to represent the content of spoken language in a meaningful and visually accessible way.

4.3.2 Assessing sign language

The present thesis uses a crude scale of assessing sign language and therefore the rationale upon which this scale was based will briefly be discussed.

Sign assessment has to deal with similar issues as spoken language assessment does (see 3.3.2) but also be sensitive to the diversities of the deaf population, i.e. to be able to distinguish between the atypical use of language and sign language as L2. Sign assessment tests are based on *developmental stages* of language and on *linguistic features* of sign language exactly like spoken language tests.

As mentioned in chapter 3.3.2, the developmental order of sign language acquisition or any language acquisition, is an indicator of which morphosyntactic features are "easy" or not. Most assessment tests exploit exactly this acquisition order of a language to assume the complexity of the morphosyntactic features that the language poses to the users. The sign language developmental stages have been described in some detail by researchers investigating ASL and BSL (see Chamberlain, Morford, & Mayberry, 2000; Morgan et al., under review). For example the very **early stages of sign development** have been described as a transient phase of distinguishing gestures from signing as they both use the same modality. In a **later stage of early sign combination** –an equivalent of the two-word stage- it is usually an index and a lexical sign that are combined. Verbs are used unmodified and classifiers and pro-forms are not yet used. In addition pointing has literal than referential meaning. At the **last stages of sign language development** come complex structures such as aspectual marking, facial marking for topicalisation, conditionals and referential shift with speech reporting of multiple referents being one of the late achievements (Herman, 2002; Morgan, Herman, & Woll, 2002; Volterra, 1994). This developmental order in linguistic features was also used in the sign assessment developed for use in the present study to define stages of proficiency in GSL.

Another issue that was taken into consideration in sign language assessment was to decide on the domains of language use as well as the number of proficiency levels. For example Mounty's assessment checklist for ASL (1993) is built around different domains of language (i.e. overall language ability, morphological domain, syntactic domain, perspective domain, creative domain of language use etc.) and each domain has a hierarchy of three levels. Herman, Holmes, & Woll's BSL Receptive Skills Assessment (1999) has two levels i.e. pass or fail and the items assessed are more or less taken from the familiar morphosyntactic pool: e.g. noun modification, verb type and modification.

The present study has used a mixture of the above criteria and has tried to take into account both linguistic descriptions of language (which reveal specific language difficulties), and developmental stages, (which reveal universal difficulties). After describing the rationale of existing sign language tests design, the basis of the tailor-made sign assessment test of the present study will be described fully in the methodology chapter (see 0).

4.4 Research in deaf education and deaf literacy in Greece

Research into deaf education and particularly on deaf writing in Greece is scarce. Recently there has been an interest expressed in deaf education and Greek Sign Language (GSL) by various research, which are in progress: research in sign linguistics of GSL (Antzakas, in preparation; Sampoutzaki, in preparation), deaf literacy and education (Kourbetis, 2000; Koutsoubou, 2002, 2004; Makarona & Lampropoulou, 2003; Tsiolka, 2001) and issues of social inclusion and deafness (Mpirmpa & Lampropoulou, 2003) among others. Greece has recently recognised GSL as a legitimate language for deaf students to be taught at (Kourbetis, 2000) and a bilingual approach in education is underway.

It is obvious that it will take many years to implement a real bilingual deaf education but there are some positive indications from research already. Kourberits (2000) reported a pilot study where 5th and 6th grade deaf students were taught GSL from a

deaf teacher. This pilot was part of the indented development of bilingual educational material designed for the deaf students. The teachers evaluated the program as successful and that it invoked the students' active participation and enthusiasm as well as it elicited good performances.

Another relevant study is that of Tsiolka (2001) who studied the differences of interaction between deaf and hearing teachers with their deaf students. She reported that hearing teachers, in an effort to teach Greek language via written texts, seemed to focus on low-level parameters of the details of the text. Deaf teachers on the contrary focused on information and text negotiation first making use of sign language and visual strategies. This actually was more facilitative of children's understanding of the texts, involvement in class and by extension teaching literacy in deaf classrooms.

As far as research on written language of deaf students in Greece is concerned the outcomes are more or less in accordance with research in other countries. For example, Lampropoulou (1993) examined the written language of 5th-6th elementary school grade Greek deaf students in their productivity, flexibility and complexity of their productions in comparison to those of hearing students. She found that in the productivity (i.e. the length of texts) is not so much varied against that of hearing students but on all the other measurements she agreed with previous research findings: less varied vocabulary, rigid sentential structures and rare use of subordination.

In another research Mihailidou (1997) investigated the written stories of 8 deaf students of 5th-6th elementary grade controlling with a hearing group of 8 students of same grade. They wrote three stories from picture prompts of increasing complexity. She measured the productivity, complexity and the story grammar components and she reported the following: *productivity* (as expressed by length of text) was not significantly different between the two groups but the length of sentence was significantly smaller in the deaf group. *Complexity* (as expressed via subordinate clauses) was significantly less in all stories in the deaf group and on the *grammar story components* level (as expressed by setting, initiation event, attempt and closure) almost half of the total stories lacked a "setting" or an "initiating event", rarely there

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was an "attempt" and the only successful component seemed to be the "closure". Her results again come to support an immature, rigid, simplistic and poor written language. As for the difficulty in creating proper story structures this was explained because of the inaccessibility of deaf children form early age to storytelling and written material.

More recently, Mparlou (2000) examined the story grammar in the written narratives of seven deaf students' between the ages of 16-22 years. In this research the story grammar was measured as: *setting, initiating event, internal response, attempt/action, consequence, ending.* In this research the stimuli were up to the students' choice between pictures and their own composition and most chose the picture stimuli. She found that most of the story grammar components had varying degrees of vagueness with the ending being the component most problematic. Also she found that years of education, good GSL skills and interest in reading books in general did have a positive effect on writing. This research has explicitly addressed the issue of GSL's participation in deaf literacy although it was not assessed or even manipulated as a parameter.

4.5   The purpose of this research: what is the effect of translation vs. direct writing on the writing of deaf with different degrees of bilingualism?

Up to now, research on deaf writing in Greece has not addressed sign language proficiency as a research parameter. The present study is an effort to take the existing research in Greece one step further. First of all, address different levels of sign language proficiency in the deaf population, which may affect their written products in different ways. The assessment of sign language, although crude and unsophisticated due to lack of tests, will be used to form language groups. Up to now, the issue of using sign language material in a direct link to writing and actually as a course of translation, has not been addressed either. With respect to bilingual education being applied now in Greece we need to know *what* works for deaf students without referring to hearing bilingual issues and investigate which materials improve the writing performance of deaf students. We can investigate if

manipulating the linguistic input i.e. sign language input vs. no linguistic input, results in improvement in writing. We can also research how linguistic input interacts with different degrees of fluency in the two languages involved – a case unique to deaf people, as it is rare to commence learning to write an L2 before fully mastering an L1.

The present study considers the following areas:

• Deaf students' bilingualism (their abilities in sign language and written language) and

• Manipulation of input material in order to see the effect on performance.

This study seeks to answer the following research questions:

1. What is the performance of deaf students with different bilingual skills at various levels of the writing process? It is anticipated that bilinguals with good skills in *both* languages will outperform bilinguals with an imbalance between the two languages. In the case of deaf students, we may find different levels of bilingual skill, e.g. bilinguals with good sign language and good written language skills, bilinguals with good sign language and poor written skills, and bilinguals with poor skills in both languages (see 2.1.1 and 4)[20]. It would be interesting to explore the performance of the last two groups against that of the first. This could indicate what it means to know a good background language (in this case GSL) as opposed to not adequately knowing a language at all. It will be even more interesting to see how the groups' performances change according to writing activity (e.g. literature review indicates that we should expect deaf people's good sign language skills to facilitate informational and organisational aspects of the story but not necessarily the grammar).

2. Can we influence the writing process by using different stimulus materials? This question springs out of the need to know whether the different linguistic material that bilingual education can provide is facilitating or not written literacy activities and at which levels the materials can do that. From the literature review on bilingual education and writing it was shown that manipulating language material can

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[20] "Poor" and "good" language skills refer to the level of proficiency in a language. The theoretical aspect of this issue has been covered in 3.3.2 and the specific levels of language skills of the present population are defined in 6.1.2.

influence the performance of students in L2 writing but this influence will co-vary with their proficiency in the L2, which brings us to the third question of the study.

3. Do deaf writers with different bilingual skills make different use of sign language input? The literature review has showed that the L2 writers who are most helped by use of their best-mastered language (in a hearing population this is the L1) are the low proficiency students who can resort to L1 for various reasons when forming a text (i.e. from information processing to grammar and lexical borrowing). The more proficient the writer is in the target language, the less of a role L1 plays in the formation of a text.

4. Do the patterns of errors change when we change stimulus material? This refers to the quality of bilingualism deaf students experience, which may be a combination of a variety of bilingual and non-bilingual phenomena such as contact languages, sign language interference, orality of sign language and patterns specific to visual processing that will be unique to deaf bilingual populations. It is important to describe the patterns of errors that are committed under the influence of different material because this will help us have a rounded idea of the source of errors and eventually to understand why deaf students, even under the prism of bilingualism, are still difficult to fit totally within this model.

This thesis argues that we should know which aspects of L2 writing are facilitated from an additional language of varying degrees of proficiency and which aspects it does not facilitate. Also it intends to propose that sign bilingual education does not deal with exactly the same issues as hearing bilingual education and should therefore be considered separately. It intends to argue that the involvement of two languages in deaf education is a necessity beyond arguments coming from the hearing experience. It is impossible not to use some sort of sign language and this use is not about bilingual education but about necessity. The deaf population comprises a unique population of bilinguals, therefore their education should be considered unique and to some extent beyond the bilingual debate.

4.6   Summary of "Writing of Deaf Bilinguals"

This chapter seeks to unify the areas of writing, bilingualism and language acquisition & deafness. Deaf bilingualism and deaf writing were presented and a review of the different approaches in deaf education over the years was provided along with their goals and attainments. The role of sign language in teaching the written form of a spoken language was discussed. This has been challenged as sign language does not have a written form and therefore lacks the literacy link. The chapter also briefly explored sign language assessment – definitions, criteria and sign language developmental stages. The area of sign language developmental stages is important as because it shows that deaf students' bilingualism has an additional parameter to consider: proficiency levels of sign language. This is different from hearing bilinguals who can normally be assumed to have native mastery of their L1 . Sign language assessment was important in developing the sign language profile of the sample population. The chapter has also explored deaf education and writing in the Greek context where the study took place. The review highlights gaps in Greek research, which the present study attempts to address. The present research is the first to look at Greek deaf writers and consider Greek Sign Language and written Greek as research parameters. The chapter concludes by setting the research questions of the study.

5   THE PILOT STUDY

A preliminary study took place before the main study in order to identify potential problems as well as to gather a sample of written texts from deaf writers and decide how the texts would be analysed. The preliminary study was essential in order to make realistic decisions about how to approach the largest number of deaf students with the least disruption of classes. More specifically, the preliminary study aimed to:

a.   Identify the people, the institutions and the processes needed in order to access deaf classes.

b.   Become familiar with the schools' timetables, the teachers' awareness of sign language in order to carry out sign language assessments and the students' writing level and motivation to engage with written tasks.

c.   Isolate potential problems with the assessment tasks for GSL and written Greek.

d.   Eliminate potential problems in administering and carrying out the writing tasks.

e.   Gather samples of written work in order to identify potential categories or patterns of errors.

The pilot study took place 8 months before the main study. As the papers for authorised access to deaf classes had not been obtained yet, the researcher was allowed to engage deaf students in activities on a day of a national celebration but only for a restricted time (i.e. only one visit was possible). The students only completed one task, the video story. Various options about the direct composition task were still being considered at the time such as picture-sequence task, composition of a story from one-picture stimuli or elaboration of a given topic. Also, due to time restrictions, the researcher decided to apply the video material as a priority material.

The students visited (n=14) were a mixture of High School graduates and post-graduates who attended technical classes. The age range was between 17-23 years –

with the exception of a 27 year old student- and the mean age was 20 years old, which is slightly above the mean age of students in the main study (18.4 years). The researcher did not want to target the high school graduates for the pilot study, as she wanted most of them to take part in the main study. Most of the writers of the pilot study therefore had graduated at least a year before from high school.

At the time of the preliminary study, the plan for assessing deaf students' sign language, was to videotape each of them signing the story they had just written down and then give the videos to a native deaf person for assessment. The plan for assessing their written Greek was to administer a test designed by the researcher, according to criteria for Greek as L2. The basic advantage of this design is reliability, because the rater is consistent with the criteria applied and there is more control over what is really measured.

In choosing the video story, the researcher had to anticipate what kind of language constructions she wanted to elicit from the deaf writers. Since deaf written texts have been described as weak in cohesion/coherence, the researcher decided that *reference* should be the focus of attention, i.e. introduction, re-introduction, maintenance of characters and perspective shifts between characters and narrator. There has been an effort to focus on specific constructions, which are common in deaf writing and therefore may reveal error patterns specific to sign language users.

The material used was a video of a well-known story from Aesop's fables ("The Fox and the Raven", duration: 3'40") (see appendix 10) and was signed by a native Greek signer.

5.1   The task

The researcher visited a group of 14 students. She told them they were going to see a signed story to which they should pay a lot of attention because they were going to write it afterwards in Greek. The story was shown twice. When the writing started

the researcher told them to try and write on their own. The following observations were made.

Most of the students vividly interacted in sign and negotiated the meaning of the story between them. They frequently asked the researcher and other students about the spelling of words or the equivalent of a sign in Greek (e.g. the sign FOX or the sign BIRD-BLACK for "raven"). The researcher felt that this should not take place in the main study as it interfered with decisions about writing (i.e. helping with the spelling of a verb also provides information about the person, mood, tense etc.). It was also noted that a few students did not engage with the writing task and would not produce a written text. This informed the researcher that the number of written texts in the main study may be smaller than anticipated. Also some of the written stories were not completed, which indicated to the researcher that she would need to find ways to account for unfinished stories.

From the 14 students, two did not write stories and the story of one student (the 27 year old) was not included due to the big age difference. 11 stories were analysed.

5.2 The assessments

After the written texts were collected, the researcher tried to videotape the students for sign language assessment purposes. This proved to be difficult to achieve. Firstly, the overwhelming majority of students were not willing to be recorded. Secondly, the process of videotaping in the school environment was complicated as there was no empty room available. Thirdly, the headmaster could not guarantee that permission for videotaping on the school premises could be given and it was suggested that for students below the age of 18, parental consent was required. Although this was not a problem with the preliminary study, as most of the students were above 18, it was a consideration for the main study, which aimed at slightly younger students. Lastly, the time needed to videotape all the students, was not available because of the school timetable.

As a consequence of these factors, the researcher managed to videotape only 4 students. Analysis revealed their signed stories to be richer in information, grammatical elaboration and style than their equivalent written stories. The transcriptions of their signed stories in comparison with their equivalent written stories alerted the researcher to the potential different writing styles of different signers.

5.3   The analysis of texts

A crude exploration of the reference of the written narratives indicated the range of errors Greek deaf students can make. It was clear that much information was missing from the narratives and that many written stories had a blunt and inexpressive style. The most marked errors that affected the texts were the following:

a) *Verb constructions:*
→ Person of the verb (wrong person construction according to perspective)
→ Tense (improper tense shift according to perspective),
→ Subordination (misagreement and confusion of perspective which is revealed from the verb of the first clause and that of the second)

b) *Pronouns*
→ Lack of personal pronouns as a means for maintenance and anaphora
→ Elimination of important pronouns
→ Mismatch between pronouns and their referents

c) Overmarked noun reference

d) *Extensive use of definite articles as a mean for character or setting introduction without any previous reference to them*

e) *Simultaneous/concurrent narration*

(The text appears to be unconnected, with all the elements of the story thrown randomly in the narration, without proper reference. This kind of narration consists basically of nouns and usually takes place in the beginning of the story)

e.g. Ο αγροτικός *του* χωριού *και* δυο άνθρωποι αμάξι *προς* δρόμο *και* για κουβέντα *και* ένα πουλί κοράκης *με* προσπαθήσει δαγκώνει ελάφι κρέας τετραγωνάκι = The *farmer* of the *village* and *two men car* to the *road* and for *talk* and a *bird raven* tries to bite *deer meat little square.*

It must be mentioned here that not all of the above were observed in every written narrative (i.e. subordination was rare, and pronouns were generally avoided). A further error concerning reference was grammatical gender and referent mismatch.

5.4   Outcomes of the preliminary study

The preliminary study gave important information on how the tasks could realistically be used in the context of schools. With regard to the non-linguistic task, it was decided that the most appropriate one to apply was a picture sequence task. This was because the pictures would provide a structure comparable to the video story. None of the other options (i.e. composition of a story from one-picture stimuli or elaboration of a given topic) would elicit comparable narratives to the video story because the writers would create incomparable stories.

The most important outcome was the assessments. It was decided that videotaping was not possible and information on sign language assessments should be pursued via other means.

Also, the assessments of written Greek did not take place in the way they were planned because it was decided that any pre-designed printed material distributed to the students would involve reading in addition to writing. After meeting a deaf teacher and receiving advice on various aspects of assessing the students, the researcher decided not to involve reading when assessing writing. Standard L2 assessment tests contain exercises such as multiple-choice, fill-in-the-gaps, sentence

transformation, text-comprehension etc., almost all of which involve reading before the student is required to write. The researcher decided that assessment of writing should be accessed elsewhere. For assessment of each of the languages (Greek and GSL) the most realistic option was to ask the deaf and hearing teachers of the students who knew them best to be involved (see below 6.1.2)

The exploration of the preliminary stories helped the researcher shape the categories of errors to be used in the main study. It was obvious to the researcher that the meaning of many of the stories collapsed at a much earlier level than the grammatical, and decisions to account for information, type of information and organisation of the texts were made. The researcher decided to look at the texts on more than one level as well as not to focus only on reference construction. The categories designed (see chapter 7) reflected the bilingual frame, as it was obvious that the language of the texts was operating on a continuum of a "GSL like" to more "Greek like" style.

6 THE MAIN STUDY

6.1 The research questions and the design of the main study

As mentioned in 4.5 the research questions of this study are:

1. What is the performance of deaf students with different bilingual skills on various levels of writing process?

2. Can we influence the process of writing by using different materials?

3. Do deaf writers with different bilingual skills make different use of language material?

4. Do the patterns of errors change when we change material or do deaf students always go via the same route and what is this pattern?

In order to answer the first question, the bilingual skills of deaf students were assessed. In order to answer the second question, the effects of different input (material) on deaf students' writing were compared. The third question is the interaction effect of the two parameters manipulated: i.e. language proficiency × material. Finally, in order to answer the fourth question, the patterns of errors were examined to see whether they changed in the context of different stimulus material.

It was decided that the most compatible methodological design for the requirements of the present study was a mixed method with more emphasis on the repeated-measures design, i.e. the same participants across all language groups to be tested on two separate occasions (video and pictures). The researcher opted for this design as the best possible for two reasons: the small size of the sample and the enormous variability not only of the sample but also the general deaf population.

A repeated-measures design as opposed to an independent-measures design generally requires fewer participants since the data derives from the same group and a control group is not required. Also, the individual differences that exist among the

participants are cancelled with this design precisely because the data comes from the same individuals in all measures. Independent-measures designs are quite sensitive to individual differences and it would have been hard to create different groups to match the tasks had we opted for such a design. Independent-measures designs also reduce the size of the experimental groups to half, which is something that could not be allowed since the participant sample was already small. The main disadvantage of the repeated-measures design is "order/practice" effects[21], which there was an effort to counterbalance and eliminate from the present procedure -see 6.1.1.1- (Field, 2000; Robson, 1983).

6.1.1 First variable – tasks of different stimulus material

Two sets of stimulus materials were designed. The first was a story presented on video in Greek Sign Language. The second was a picture storybook without printed text. In both tasks the requirement was to write the story down. The aim was to compare the stories elicited by the different material and to decide which was more elaborate in information, organisation and language use.

The researcher chose these tasks because they sum up the usual bilingual circumstances under which a person has to produce a written text. These are:

Translation/paraphrase: where the meaning is presented in Greek Sign Language. The researcher assumes here that the translation task is a linguistically biased task, as memory will have kept meaning-in-a-form.

Direct writing: where there is no other language explicitly intervening apart from the language that the mind uses to construct meaning. Here the task of direct writing is used to see in what ways it may be different from the translation task.

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[21] Order or practice effects are the order of presentation of the material. For example, the first material would offer a "practice" for the second, which may appear as improved in the measures. It may also work differently having a "fatigue" effect where the participants are bored and tired from the first task and the second task appears lower in measures. These effects can be controlled in various ways, e.g. by counterbalancing the order of presenting the tasks or allowing for a time gap between the tasks, both of which have been applied in this study

These specific tasks were chosen because they replicate features of either a bilingual approach in the classroom (video) or a traditional approach to deaf education (picture book). In the video task, sign language is explicitly involved in the writing process, as it is a translation task. In the picture book task there is no explicit source language involved in writing. The video task may therefore be expected to show more interference from sign language. If similar errors are found in the picture task, this may indicate that in both situations sign language is used to create meaning and form.

6.1.1.1 The materials used

The materials used were two picture stories without words: "Frog, Where are you?" (Mercer, 1969) and "The Grey Lady and the Strawberry Snatcher" (Bang, 1986) (from now on: *Frog Story* and *Strawberry Lady*). Both of them were of similar length with 24 and 27 pictures each (see appendix 9).

The stories were piloted with a bilingual hearing writer and both stories elicited were of similar length and degree of grammatical complexity (see appendix 5):

The two stories were presented in a booklet form for the picture task and were also signed by a Deaf native signer of GSL for the video task (see Appendix 10 for the video and Appendixes 1 & 2 for the glossed versions of the signed stories). Both signed versions lasted around 4min. Half of the participants received the Frog Story in video and the Strawberry Lady in pictures and the other half received them the other way round, in order to control for story effects and counterbalance the order/practice effect of the repeated measures design.

6.1.2 Second variable - the different bilingual groups

The second variable –bilingual proficiency- was determined by assessing the two languages involved in the writing process: GSL and written Greek:

With regard to the deaf sample included in this study, there has been an attempt not to use the terms L1 and L2. One reason is because their use is established in the literature as expressions of different language experiences from a hearing point of view. Another reason is that, with regard to the subjects involved in this study, we do not have full access to each participant's language acquisition story and therefore cannot reliably state which is L1 and L2. Instead in the following experimental study the word **"dominant"** is used to mean the stronger or preferred language of the two and not to imply absolute proficiency. The terms **"strong balanced bilingual"** and **"weak balanced bilingual"** are also used to imply a positive and a negative balance respectively. More specifically, "strong balanced" implies equally high language skills in both languages and "weak balanced" implies equally low language skills in both languages.

6.1.2.1 Criteria for assessing Greek Sign Language

There are no standardised assessments for GSL. The researcher therefore designed the assessment scale with the help of a deaf teacher in one of the schools and with reference to existing assessment tests and checklists (see *Assessing sign language*, 4.3.2). Four levels were set and language proficiency was examined in terms of general communicative, creative and pragmatic characteristics.

The criteria for each level were the following:

1	→	2	→	3	→	4
poor		adequate		good		very good

Level 1 (poor)

Usually struggles to express him/herself in sign.

Does not use sign language or uses limited sign language or is Greek monolingual.

Space is not used for linguistic purposes (i.e. to set points of reference).

Uses plain verbs and does not modify verbs & nouns.

Sign vocabulary is very poor.

No clear use of role shift. Signing looks like gesture or mime.

Uses speech supported signing (speaks while s/he signs).

No creativity in signing (e.g. humour, metaphor, poetry).

Level 2 (adequate)

Adequate skills to express him/herself.

Expresses him/herself with examples and symbols.

Uses space for reference, i.e. points to present objects to refer to absent ones.

Modifies some verbs and nouns.

Sign vocabulary is substantial for his/her communicative needs.

Role shifting occurs but inconsistently.

No preference in a linguistic code. Use of a mixture of Greek and GSL.

Syntax resembles Greek order and not GSL.

Poor use of space for linguistic purposes but meaning is clear.

No creativity.

Level 3 (good)

Expresses him/herself through GSL comfortably.

Space is used for linguistic and reference purposes successfully.

Can modify nouns and verbs clearly.

Sign vocabulary is wide.

Role shifting is successful and perspective is clearly stated.

GSL is usually the language of preference but a mixture is created where necessary.

Some creativity.

Level 4 (very good)

Expresses him/herself skilfully in GSL.

GSL is possibly the mother language.

GSL is the language of preference and Greek is the L2.

Wide range of sophisticated vocabulary.

Inflection, morphology and role shifting are consistently accurate.

Translation from the L2 to GSL is accurate.

Ability to use GSL very creatively (e.g. poetically, humorously, metaphorically).

6.1.2.2 Criteria for assessing written Greek

This assessment was also designed with the help of a deaf teacher. The rationale was to take into account the bilingual nature of the deaf students' writing (see also 3.3.2). It aimed to assess overall writing performance including vocabulary, morphology, grammatical constructions and coherence of texts. The rating scale also had four levels, similarly to that of GSL, to make the assessment of the two languages comparable:

1 → 2 → 3 → 4

poor   adequate   good   very good

Level 1: incomprehensible text, simple sentence structure, erroneous morphology in noun and verb system, poor vocabulary with same words used to express a wide variety of meanings, some errors resemble sign language interference but quite difficult to tell how.

Level 2: writer manages to reveal meaning through simple grammatical constructions, coordination of simple sentences, a wider vocabulary, errors heavily influenced by sign language.

Level 3: morphological and grammatical errors that do not interfere with comprehensibility, wide range of vocabulary, correct use of subordination, correct use of inflectional and klitic system of Greek language. Use of Greek with sign language interference but also manages good structures of Greek.

Level 4: use of elaborated constructions such as conditionals, complement clauses, use of a variety of tense and aspect structures, meaning clear and stylistic choices successful, rich vocabulary, fluency. Use of Greek without sign language interference.

Apart from the school teachers, an external assessor also marked the texts in order to check the validity of raters' decisions.

6.2   The procedure

The study took place at three Deaf schools in Greece. Two of them were deaf residential schools with a strong signing environment and one school was joined to a hearing school. In two of the schools there was at least one deaf teacher and in the remaining one there was only a hard of hearing teacher.

The visits to the first two schools took place in November 2001 and the visit to the third took place in February 2002. The participants were all the students in the last two classes of Lyceum (High school) and their age ranged from 17 to 23 years (average age 18,4 years). The number of participants from each of the three schools is: School 1 (15 participants), School 2 (7 participants) and School 3 (4 participants) -in total 26 students. Data collection took place in their classrooms during their normal lessons. Every student in each class took part. Of the 26 participants only 20 provided data for the present study, as hard-of-hearing students (n= 3) and non-cooperative students were excluded (n= 3). Two visits were paid to each class, one for the video task and the other for the picture task. The process was as follows: The researcher replaced the normal teacher with the permission of the Headmaster and explained the purpose of the visit. After a short introduction the presentation of the materials took place. The researcher adopted a random order in presenting the materials to each class.

For the video task the researcher told the class that they were going to see a short story in Sign Language. They should pay attention to the story because after that they were going to write it down. The story would be shown as many times as the class wanted. Twice was always enough. The video stories lasted 4min each. Writing down the story took approximately 20min. The researcher distributed papers with the following information: title (Frog Story or Strawberry Lady), name, age, class, (see Appendix 6). After collection, the papers were marked for stimulus: i.e. *video*-frog story or *video*-strawberry lady.

For the picture task the researcher gave each student a picture-booklet with the story. She asked the students to take a good look at the story for about 4-5 min because they would write down the story afterwards. After they had looked at the story the

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researcher took away the booklets and distributed papers. The students were given about 20min to write the story. After collection the papers were marked for stimulus: i.e. *picture*-frog story or *picture*-strawberry lady.

In both tasks some stories were not completed for various reasons. Some of the students faced difficulties writing down the stories and others lost interest during writing. Unfinished stories were also included in the final sample. A complete set of picture/video stories from the same person was not always collected, as s/he might have been absent on one of the days when the research was conducted.

Information about the students from whom data was collected as well as background information and information about the task is given in Table 6-1 below (names are not real):

Table 6-1: General information about the participants

No.	Name (code)	Age	Gender	School	Class	Frog Story	Strawberry Lady	Deaf members in the family
1	PANTLAZ	19	Male	1	B	Pictures	Video	-
2	GIORLOG	18	Male	1	B	Pictures	Video	-
3	EVGEO	20	Female	1	B	Pictures	ABSENT	-
4	EVMOU	18	Female	1	B	Pictures	Video	-
5	PANPRI	17	Female	1	B	Pictures	Video	-
6	ARILIA	18	Male	1	B	Pictures	Video	-
7	GEOSOM	18	Female	1	C	Video	Pictures	-
8	GEOTSA	23	Female	1	C	Video	Pictures	-
9	VALKONT	18	Male	1	C	Video	Pictures	+
10	PELPAN	19	Female	1	C	Video	Pictures	-
11	IRIPONT	18	Female	1	C	Video	ABSENT	-
12	TASDIM	18	Male	2	B	Pictures	Video	-
13	VASTAM	18	Male	2	B	Pictures	ABSENT	-
14	GEOPLA	18	Female	2	C	Video	Pictures	-
15	NATALOU	20	Female	2	C	Video	Pictures	-
16	STAVAP	18	Female	2	C	Video	Pictures	-
17	FOTFOT	19	Male	2	C	Video	Pictures	-
18	GIOPAP	18	Male	3	B	Pictures	Video	+
19	ANTSIN	19	Female	3	C	Pictures	Video	-
20	STATA	18	Female	3	C	Pictures	Video	-

6.2.1 The assessment of students' GSL and written Greek proficiency

In order to group the students, they were assessed on their signing and writing abilities. To make the assessments more reliable, the deaf teachers in each school were asked to carry out the sign language assessments.

The assessment of writing was more straightforward, as the target language (written Greek) was taught by native Greeks or fluent deaf teachers. This did not mean that there were no problems. One was that the assessor was not always aware of the bilingual nature of his/her students. This could result in either assessments which were too strict (e.g. due to comparison to hearing monolingual peers) or assessments which were relative to their deaf peer group (e.g. valuing the best of a specific group as "very good" writer). There was an effort to control all the above parameters by presenting a scale of performance based on specific criteria.

The assessment in both languages was made in a scale of four steps so that the competence could be comparable. Intermediate stages were also allowed, for example: $2 \rightarrow 3$ (2.5) or $2 \rightarrow 1$ (1.5).

For the assessment of GSL two different assessors were recruited from each school using the criteria described in section 0. In addition the assessors often provided a lot of information about the student's family attitude towards deafness, the student's attitude towards his/her deafness, deaf relatives, personality and intelligence, interests, family, educational background (such as students coming from hearing schools), and enjoyment of literacy.

Also an independent assessor was intended to get involved in sign assessments but in the case of GSL this was not possible, as video recording the signing of students in the school, was not permitted.

For the assessment of written Greek there were two internal assessors, i.e. two schoolteachers who gave a general assessment and an external assessor who was a

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teacher of Greek as a L2 and gave assessments based on the written texts [22]. The internal assessors (schoolteachers) were presented with the criteria described above (see 6.1.2.2).

The external assessor used her own criteria and experience and also was not informed that the texts were from deaf students. She rated all the texts together so the differences between assessors from different schools were eliminated. The external assessment did not contribute statistically in the measures of reliability and correlations but it contributed to validity.

Table 6-2 presents the assessments of internal raters on GSL and written Greek and Table 6-3 presents the assessment of the external rater on the students' written texts.

Table 6-2: Participants' assessments by their teachers

Student	Rating in GSL (1st assessor)	Rating in GSL (2nd assessor)	Rating in written Greek (1st assessor)	Rating in written Greek (2nd assessor)
1. GIOURLOG	3.50	3.50	2.00	1.50
2. VALKONT	3.00	3.50	3.00	2.00
3. GOPLAST	3.00	4.00	1.50	2.00
4. NATLOUTZ	1.50	4.00	1.00	1.00
5. GIOPAP	2.50	2.50	2.00	1.00
6. IRIPONT	3.00	2.50	2.50	2.00
7. STAVAP	2.00	2.50	2.00	2.00
8. FOTFOT	2.00	3.00	1.00	1.00
9. VASISTAM	2.00	2.50	1.50	1.00
10. ARILIA	2.00	2.50	1.00	2.00
11. EVGEO	1.50	1.50	1.00	2.00
12. PANTLAZ	1.50	2.00	2.00	2.00
13. EVMOU	4.00	4.00	3.00	2.50
14. GEOSOM	3.50	3.50	3.50	2.00
15. PANPRISK	3.50	3.50	3.50	3.00
16. GEOTSA	3.00	3.00	3.00	3.00
17. PELPAN	2.50	3.00	3.00	3.00

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[22] The aim was to check how deviant from Greek bilingual students deaf students really are. The external assessor noted that they were "very different as far as the coherence and organisation is concerned". This is a different response to previous research (Fraser, 2001) where the assessor could not tell the difference between texts of hearing L2 writers and deaf writers. This inconsistency may reflect methodological issues such as differences in selecting samples.

18. TASDIM	3.50	2.50	1.50	2.50
19. STATA	2.00	3.50	2.00	2.50
20. ANTSIN	2.50	3.00	2.50	2.50

Table 6-3: Rating of written Greek from external assessor

Name (code)	Rating in written Greek	
	picture	video
GIOURLOG	1.50	1
VALKONT	1.50	1
GOPLAST	1.50	1.50
NATLOUTZ	1	1
GIOPAP	2	2
IRIPONT	ABSENT	2
STAVAP	3	2
FOTFOT	1	1
VASISTAM	2	ABSENT
ARILIA	2	2
EVGEO	2	ABSENT
PANTLAZ	2	1.50
EVMOU	2,50	3,50
GEOSOM	2	2
PANPRISK	3	3,50
GEOTSA	2,50	2.50
PELPAN	3	3.50
TASDIM	2	3.50
STATA	4+	4+
ANTSIN	4	4

The 37 texts collected were balanced in material source (see Table 6-4).

Table 6-4: Distribution of narratives according to story and presentation method (video/pictures)

Frog Story		Strawberry Lady	
Pictures	Video	Pictures	Video
11	9	8	9

6.2.1.1 Inter-rater reliability of the assessors

<u>Inter-rater reliability of Greek sign language assessors</u>

The correlation between the sign language assessors was calculated using the Spearman's rho correlation coefficient non-parametric test. The correlation between the two raters was significant (Spearman= 0.464, sig=0.039 < p=0.05) although not high as seen from Table 6-5:

Table 6-5: Correlations of the GSL assessors

		GSL1	GSL2
Spearman's rho 1st rater of GSL		1.000	0.464*
	Sig. (2-tailed)	.	0.039
	N	20	20
2nd rater of GSL		0.464*	1.000
	Sig. (2-tailed)	0.039	.
	N	20	20

* Correlation is significant at the 0.05 level (2-tailed).

<u>Inter-rater reliability of raters of written Greek</u>

The Spearman's rho correlation test was also applied here. The correlation between the two raters was significant (Spearman= 0.595, sig=0.006 < p=0.01) as shown on Table 6-6:

Table 6-6: Correlations of raters in written Greek

		1st rater of written Greek	2nd rater of written Greek
Spearman's rho 1st rater of written Greek		1.000	0.595**
	Sig. (2-tailed)	.	0.006
	N	20	20
2nd rater of written Greek		0.595**	1.000
	Sig. (2-tailed)	0.006	.
	N	20	20

** Correlation is significant at the .01 level (2-tailed).

Comparison of raters of written Greek

As seen in Table 6-7 the external assessor's ratings differ slightly from the other two (i.e. there are 1.25 or 2.75 marks but the school raters only produced more rounded numbers or halves i.e. 2.00 or 1.50). This is because the external assessor's ratings were based on two written stories for each student whereas the schoolteachers assessed their overall performance based on their everyday written work. Clearly the two assessments were of a different nature, nevertheless complementary. The external assessor marked two written texts for each student, his/her video story and his/her picture story. The same student therefore would receive two marks from the assessor (i.e. 1.50 for the video story and 2.00 for the picture story) the mean of which could produce marks such as 1.25.

Table 6-7: Ratings of written Greek

STUDENT	Reliability measurement		Validity check
	1st rater of written Greek	2nd rater of written Greek	External assessor of written Greek
1. GIOURLOG	2.00	1.50	1.25
2. VALKONT	3.00	2.00	1.25
3. GOPLAST	1.50	2.00	1.50
4. NATLOUTZ	1.00	1.00	1.50
5. GIORGPAP	2.00	1.00	2.00
6. IRIPONT	2.50	2.00	2.00
7. STAVAP	2.00	2.00	2.50
8. FOTFOT	1.00	1.00	1.00
9. VASISTAM	1.50	1.00	1.50
10. ARILIA	1.00	2.00	2.00
11. EVGEO	1.00	2.00	2.00
12. PANTLAZ	2.00	2.00	2.00
13. EVMOU	3.00	2.50	3.00
14. GEOSOM	3.50	2.00	2.00
15. PANPRISK	3.50	3.00	3.25
16. GEOTSA	3.00	3.00	2.50
17. PELPAN	3.00	3.00	3.25
18. TASDIM	1.50	2.50	2.75
19. STATA	2.00	2.50	4.00
20. ANTSIN	2.50	2.50	4.00

The external assessor's ratings did not take part in the reliability measurements as already mentioned. Nevertheless the correlations of the three assessors give an indication of validity, which is presented in Table 6-8.

Table 6-8: Validity check: correlation between internal raters and external rater.

			1ST INTERNAL RATER OF WRITTEN GREEK	2ND INTERNAL RATER OF WRITTEN GREEK	EXTERNAL RATER OF WRITTEN GREEK
Spearman's rho	1ST INTERNAL RATER OF WRITTEN GREEK	Correlation Coefficient	1.000	0.595**	0.447*
		Sig. (2-tailed)	.	0.006	0.048
		N	20	20	20
	2ND INTERNAL RATER OF WRITTEN GREEK	Correlation Coefficient	0.595**	1.000	0.823*
		Sig. (2-tailed)	0.006	.	0.000
		N	20	20	20
	EXTERNAL RATER OF WRITTEN GREEK	Correlation Coefficient	0.447*	0.823*	1.000
		Sig. (2-tailed)	0.048	0.000	.
		N	20	20	20

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

Spearman's test was also applied and it was found that the external assessor correlated significantly with both the internal assessors. With the first internal rater we had the following result: Spearman = 0.447, sig.= 0.048 < p= 0.05 and with the second internal rater we had the following: Spearman= 0.866, sig=0.000 < p=0.01

6.2.2 The groups formed

From the assessments in both languages, three groups emerged (Table 6-9):

1. Sign Language Dominant group (GSL +, written Greek -) 6 subjects
2. Weak balanced bilingual (GSL -, written Greek -) 6 subjects
3. Strong balanced bilingual group (GSL +, written Greek +) 8 subjects

Table 6-9: The groups formed

STUDENT	GSL 1st	GSL 2nd	Written Greek 1st	Written Greek 2nd	External written Greek	GROUP
1. GIOURLOG	3.50	3.50	2.00	1.50	1.25	SL dominant
2. VALKONT	3.00	3.50	3.00	2.00	1.25	SL dominant
3. GOPLAST	3.00	4.00	1.50	2.00	1.50	SL dominant
4. NATLOUTZ	1.50	4.00	1.00	1.00	1.50	SL dominant
5. GIORGPAP	2.50	2.50	2.00	1.00	2.00	SL dominant
6. IRIPONT	3.00	2.50	2.50	2.00	2.00	SL dominant
7. STAVAP	2.00	2.50	2.00	2.00	2.50	Weak balanced bilingual
8. FOTFOT	2.00	3.00	1.00	1.00	1.00	Weak balanced bilingual
9. VASISTAM	2.00	2.50	1.50	1.00	1.50	Weak balanced bilingual
10. ARILIA	2.00	2.50	1.00	2.00	2.00	Weak balanced bilingual
11. EVGEO	1.50	1.50	1.00	2.00	2.00	Weak balanced bilingual
12. PANTLAZ	1.50	2.00	2.00	2.00	2.00	Weak balanced bilingual
13. EVMOU	4.00	4.00	3.00	2.50	3.00	Strong balanced bilingual
14. GEOSOM	3.50	3.50	3.50	2.00	2.00	Strong

						balanced bilingual
15. PANPRISK	3.50	3.50	3.50	3.00	3.25	Strong balanced bilingual
16. GEOTSA	3.00	3.00	3.00	3.00	2.50	Strong balanced bilingual
17. PELPAN	2.50	3.00	3.00	3.00	3.25	Strong balanced bilingual
18. TASDIM	3.50	2.50	1.50	2.50	2.75	Strong balanced bilingual
19. STAVTAX	2.00	3.50	2.00	2.50	4.00	Strong balanced bilingual
20. ANTSIN	2.50	3.00	2.50	2.50	4.00	Strong balanced bilingual

A crude rule of allocation of an individual to the groups was the sum of his/her GSL assessments: when it was above 5, that was considered to be an advantage in language. Sums below 5 were considered a disadvantage in the language.

The means of the groups from GSL 1st and 2nd assessors (GSL1 & GSL 2) as well as the means of written Greek 1st and 2nd assessors (GREEK1ST & GREEK2ND) are presented in Table 6-10 below:

Table 6-10: The means of the language groups from the assessments on GSL and written Greek

GROUP		GSL 1st RATER	GSL 2ND RATER	WRITTEN GREEK 1ST RATER	WRITTEN GREEK 2ND RATER
Strong balanced bilingual	Mean	3.0625	3.2500	2.7500	2.6250
	Total mean	6.3125		5.3750	
	N	8	8	8	8
	Std. Deviation	.6781	.4629	.7071	.3536
Weak balanced bilingual	Mean	1.8333	2.3333	1.4167	1.6667
	Total mean	4.1666		3.0834	
	N	6	6	6	6

	Std. Deviation	.2582	.5164	.4916	.5164
SL dominant	Mean	2.7500	3.3333	2.0000	1.5833
	Total mean	6.0833		3.5833	
	N	6	6	6	6
	Std. Deviation	.6892	.6831	.7071	.4916

When allocation of students to groups presented difficulties, then other factors were applied[23]. For example the researcher made a judgement on their signing or their written texts. There was an effort to include all possible information about the students. It is important to mention two implications here regarding the profile of the groups formed. The first is that there was not a clear cut division between the groups but more of a continuum among the students. The second and most important was that the information we had about the groups was not balanced: we obtained much more specific and accurate information regarding the written language profile of the participants than their sign language skills. Their sign language assessments and some anecdotal information about each individual were the only sources of information about their sign language profile. A more detailed profile of each group will be presented in the qualitative results, specifically in 8.1.1, 8.1.2 and 8.1.3.

6.3 Hypotheses of the main study

Comparisons between the three groups and within each group have been made to see whether there are differences at the *information level, organisation level* and *grammatical level* between the tasks and among the groups. There are three hypotheses:

- *The different bilingual groups will produce texts differing in quality and quantity and with different characteristics in organisation, grammar and information.*

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[23] Difficulties arose for only 2 students: numbers 4 & 5. Both belong to the SL dominant group. Case number 4 had an extreme difference in ratings between the two assessors. Case number 5 did not have extreme differences but his sum was exactly 5 and he was one of the two students with deaf family members. The researcher re-assessed both cases and decided to place them both in the SL dominant group.

- *The picture and video material will produce texts differing in quality and quantity of organisation, grammar and information.*
- *There will be an interaction between the groups and the stimulus material.*

The design of the present research therefore has a mixed 2 factors design (2x3):

One within factor: material (2 levels picture/video).

One between factor: bilingual language competence (3 levels: Sign Language dominant bilinguals, Strong balanced bilinguals and Weak balanced bilinguals).

7   ANALYSIS OF TEXTS & QUANTITATIVE RESULTS

In this chapter the methods of coding and analysing the text along with the statistical results, will be presented. For each level of analysis the quantitative results will follow. Therefore a small introduction on the statistics and the coding used will be given here.

As far as the statistics are concerned, data were analysed using general linear model-repeated measures with SPSS. Graphs and tables are provided for all statistically significant results. The graphs are boxplots, which show the median, the 25th & the 75th percentiles of the values and the largest or smallest values (indicated by the whiskers). Outlying and atypical values are indicated by small circles. The graphical representation of the data uses the median as a measure of central tendency. The choice to use the median rather than the mean has to do with the large range in the dataset and with the occurrence of extreme cases. The mean is more affected by the extreme cases whereas the median is not which makes it a more appropriate measure for this particular study. Also from the 20 students, three of them failed to provide one of the two sets of data. This means that SPSS excludes them from the calculations. The N (final sample) for each group is:

N of strong balanced bilingual = 8,

N of weak balanced bilingual = 4,

N of SL dominant = 5.

Nevertheless, their stories were included in the qualitative analyses and provided data with many linguistic examples. The level of significance was set at 0.05 for all the measurements, which follow.

As far as the analysis and the coding of the texts is concerned, that occurred on four different levels:

Level 1: amount and type of information of stories,

Level 2: organisation of stories,

Level 3: text characteristics and

Level 4: grammatical structures of stories,

and from a top to bottom direction. Therefore the higher a level an error occurs the more unintelligible the stories are. For each level the criteria used were based on the relevant literature (see Chapter 1.3.2).

All the original texts were translated into English (see Appendix 8). There are a few things that should be noted about the translation of the Greek texts and the presentation of criteria. Firstly, the translations were not direct ones. The main concern was to give the English reader the sense that a Greek reader would have when reading the specific texts. Secondly, some of the errors when translated into English did not look like errors. On the same token, some perfectly correct Greek structures do not have an equivalent in English. Therefore not all errors are apparent in translations[24].

The criteria used in analysis of texts, are illustrated with examples followed by the name of the subject who produced it. Erroneous forms are indicated by x and correct forms by √.

7.1   Level 1: Amount and type of information of stories

The amount of information

The **amount** was measured in two ways: *a.* the basic structure and, *b.* the basic story lines (see Table 7-1). More specifically:

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[24] More specifically the English texts fail to reveal errors in:
- Cases which are particularly important to detect the subject-object in a Greek sentence
- Various types of verb modification such as the person in the Greek verb.
- Grammatical gender (non-existent in English).
- Greek prepositions embedded into articles.
- Noun-Verb differentiation.
- Grapheme deletion, spelling patters or visual resemblance of errors and correct forms of words, i.e. reversed graphemes that may alter the meaning, absent or extra graphemes etc.
- Accentual system which stresses the salient syllable in Greek and which in reading an erroneously accented Greek text may "sound" in the reader's inner ears as very strange.
- The plural system, which in Greek affects the adjectives unlike English (i.e. *smalls frogs* x).

Table 7-1: Amount of information: elements, definitions and examples

AMOUNT OF INFORMATION		
Basic structure (story grammar)	**Basic story lines...**	
	For the Frog story	**For the Strawberry lady**
1. *SETTING* = introduction of the main characters as well as temporal and spatial orientation. e.g. A woman young has family and one day she-decided to get strawberries to give to her children, she went one morning to the shop where she often-goes. STATA 2. *REASON* = the trigger for the development of the story. For example, for the Frog Story the reason of the story is that the frog escaped from the house. For the Strawberry Lady, the reason is that a strange man wants to snatch the lady's strawberries. e.g. ...but suddenly she-had behind her a strange thief and follow her often. The strange thief tried to steal the strawberries from the lady. But the lady holds them tight run and get-into the bus PELPAN 3. *ACTION* = the development of the story. It was rare to find a story without the events that occurred, or some vague reference to them. 4. *CLOSURE* = the ending scene or the resolution of the story. e.g. That found the frog, come the dog to have the frog born five little-frogs. The frog wants to give a little-frog the boy, the boy took a little frog and to be very beautiful, sweet. The boy and the dog went to his house.	*1. Boy & dog have frog* *2. Frog escapes* *3. Boy and dog set off to find frog* *4. They get involved in adventures in the wood* *5. They find frog with his family* *6. Boy and dog take a new frog and go home*	*1. Lady buys strawberries* *2. A man follows her* *3. The man tries to snatch the box* *4. He starts chasing the woman* *5. She always manages to escape* *6. He eventually finds a bush with other fruit and forgets her* *7. She arrives home and gives the strawberries to her family*

The basic structure or story grammar of the story consisted of the four elements of *setting, reason, action,* and *closure* as seen above. The terminology used was the researcher's but the approach was based on previous research (see Chapter 1.3.2.1). The marking of the narratives for basic structure consisted of counting which of the above 4 elements were present. The presence of all 4 elements gave a 4/4; the

absence of one gave a ¾ and so on. Then these fractions were translated into percentages in order to make the statistical calculations possible. Measurements ranged therefore between 0-1 (e.g. 0.75) In this way the stories were comparable.

The <u>basic story lines</u> are specific to each story as seen above. These construe the minimum amounts of information required for an audience to understand the story. In order to decide on the number of basic story lines, the researcher collected data from six hearing subjects to narrate the most important parts of the stories. The parts of the story that overlapped for all narrators became the basic story lines. This was an informal way of standardising this part of the analysis.

The way of marking the basic story line performance was the same with the basic structure of the story given that in both there is a fixed number against which the performance is measured. That is to say in Frog Story, the maximum rating was 6/6 and for the Strawberry Lady 7/7 and the range was again between 0 and 1. For example, GEOSOM's Strawberry Lady narrative only had 2/4 = 0.50% of story grammar and 2/7 = 0.28% of the basic story lines.

The type of information

Here is presented the **type** (or the quality) of information, which is dependent on the writer's decisions as to what is essential for the reader to know and feel about the story. Here the stories were segmented in clauses and classified according to the information that the verb of the clause gave along with adverbs, adjectives and any modification of clauses. At this level the grammatical correctness of the clauses was not considered.

The type of information was measured as follows (see Table 7-2):

Table 7-2: Type of information: elements, their definitions and examples

TYPE OF INFORMATION	
Descriptive info	**Affective info**

In this category fall all the clauses of which verbs describe some kind of state, action or fact. For example:
 	
    State: A boy years old is eight. GEOTSA
 	
    Action: The frog is coming out of the vase and left. VALKONT
 	
    Fact: The grocer man was selling the strawberries! GEOSOM
	Any information about the inner state of the characters, evaluations by the writer comments, attributes, opinions, thoughts, desires/intentions or story animation (i.e. dialogues, monologues). For example:
	
	    Inner state: the dog is *happy*. EVGEO
	
	    Evaluation: the child *is a bad steals strawberries*. FOTFOT
	
	    Attribute: While she-was-walking, an *ugly poor* man who had obsession with the strawberries. He-was-walking behind her. STATA
	
	    Intentions: The woman she-annoyed *wanted to see who is behind* her and realised that, *that man wanted to her attack*. ANTSIN
	
	    Thought: He thinks the girl to be lost. TASDIM

	Here fell also all the clauses that were modified with any type of adjective or adverb:
	    e.g. suddenly, happily, luckily, angrily, etc.
	and clauses with verbs of emotion:
	    e.g. scared, loves, worried, annoyed, wants to, etc.

A writer can put as much description and/or affective information in the narrative as s/he wants. Consequently this type of information cannot be measured against an absolute number of propositions as happened previously in "amount of information". So the two types were measured against the total number of the narrative's clauses. For example, EVMOU's Frog Story (see Appendix 8, Section 18.1) produced a total of 31 clauses. From these, 20 clauses were of a descriptive nature and 11 were of an affective nature. The marking of this narrative was: Descriptive - 20/31 (0.64% of the text was descriptive)

Affective – 11/31 (0.35% of the text was affective).

The forms that were used for text transcriptions can be found in Appendix 3.

7.1.1 Results for amount and type of information of stories

In the <u>story grammar</u> results, Table 7-3 shows that the strong balanced bilingual group performed consistently better than the other two groups, as expected. Of interest, however, are the differences between the SL dominant and the weak bilingual group as well as their relation to the strong bilingual group.

This difference in performance is statistically significant (group main effect: $F_{(2, 14)}$= 4.784, p = 0.026). Looking at the pairwise comparisons (Table 7-4) we see that the only significant difference between the groups was between the strong-balanced and the weak balanced group (p = 0.045). The SL dominant group does not differ significantly either from the bilingual group or the weak balanced group. This makes the SL dominant group a middle-group, representing a "bridge" between the high achieving strong bilingual and the low achieving weak bilingual group.

Table 7-3: Descriptive Statistics for story grammar production of the three groups in video and picture material

Material	Group	Mean	Std. Deviation	N
PICTURE - STORY GRAMMAR	Strong balanced	0.912	0.170	8
	Weak balanced	0.562	0.125	4
	SL dominant	0.700	0.410	5
	Total	0.767	0.283	17
VIDEO – STORY GRAMMAR	Strong balanced	0.968	0.088	8
	Weak balanced	0.575	0.253	4
	SL dominant	0.616	0.439	5
	Total	0.772	0.317	17

Table 7-4: Pairwise comparisons of story grammar production of the three groups in video and picture material

(I) Group	(J) Group	Mean Difference (I-J)	Standard Error	Significance
Strong balanced	Weak balanced	*0.372	0.134	0.045
	SL dominant	0.283	0.125	0.119
Weak balanced	Strong balanced	*-0.372	0.134	0.045
	SL dominant	-0.089	0.147	1.000
SL dominant	Strong balanced	-0.283	0.125	0.119
	Weak balanced	0.089	0.147	1.000

Figure 7-1 presents this pattern better: the SL dominant group is located in the middle between the high achievers and low ones although it should be noted that it exhibits more variability in scores. Also it is obvious that this measurement did not exhibit significant material or interaction effects. Strong balanced bilingual and SL dominant performed the same in the two tasks whereas the weak balanced tends to improve in the video task. The video task though increases the variability of scores in SL dominant and weak balanced groups (see Figure 7-1 as well as standard deviations in Table 7-3).
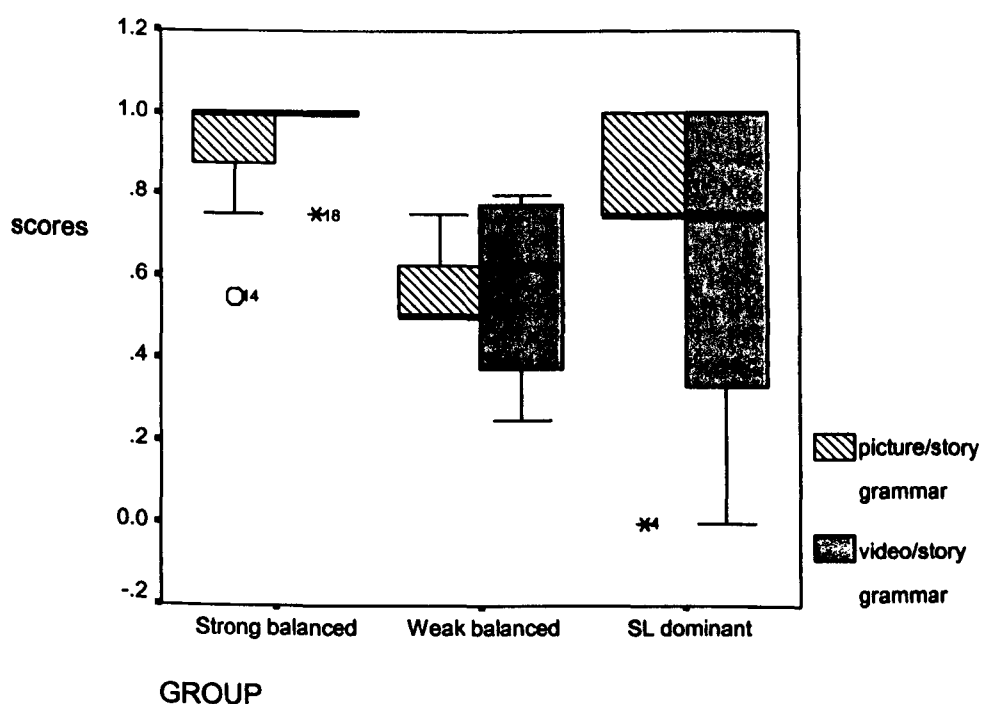
Figure 7-1: Performance on story grammar production of the three groups in video and picture material

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On the <u>basic story line</u> information there is the same pattern: the groups performed differently (Table 7-5) and the difference is statistically significant (main group effect: $F_{(2, 14)}= 7.570$, $p = 0.006$). The significant difference was directed between the strong-balanced group and weak-balanced group ($p = 0.008$) as Table 7-6 shows. Again the SL dominant group's scores are between these two other groups with no significant difference from either.

Table 7-5: Descriptive Statistics for basic story lines production of the three groups in video and picture material

Material	Group	Mean	Std. Deviation	N
PICTURE – BASIC STORY LINES	Strong balanced	0.8488	0.2437	8
	Weak balanced	0.4550	0.1034	4
	SL dominant	0.5280	0.3556	5
	Total	0.6618	0.3056	17
VIDEO – BASIC STORY LINES	Strong balanced	0.9413	8.132E-02	8
	Weak balanced	0.3300	0.2920	4
	SL dominant	0.6120	0.4078	5
	Total	0.7006	0.3552	17

Table 7-6: Pairwise comparisons of basic story lines production of the three groups in video and picture material

(I) Group	(J) Group	Mean Difference (I-J)	Standard. Error	Significance
Strong balanced	Weak balanced	*0.502	0.137	0.008
	SL dominant	0.325	0.128	0.070
Weak balanced	Strong balanced	*-0.502	0.137	0.008
	SL dominant	-0.178	0.150	0.773
SL dominant	Strong balanced	-0.325	0.128	0.070
	Weak balanced	0.178	0.150	0.773

Figure 7-2 shows the allocation of the groups with respect to each other as well as the wide distribution of scores within the SL dominant & weak balanced group, particularly in the video task. Again in this measurement we do not have any material or interaction effects.
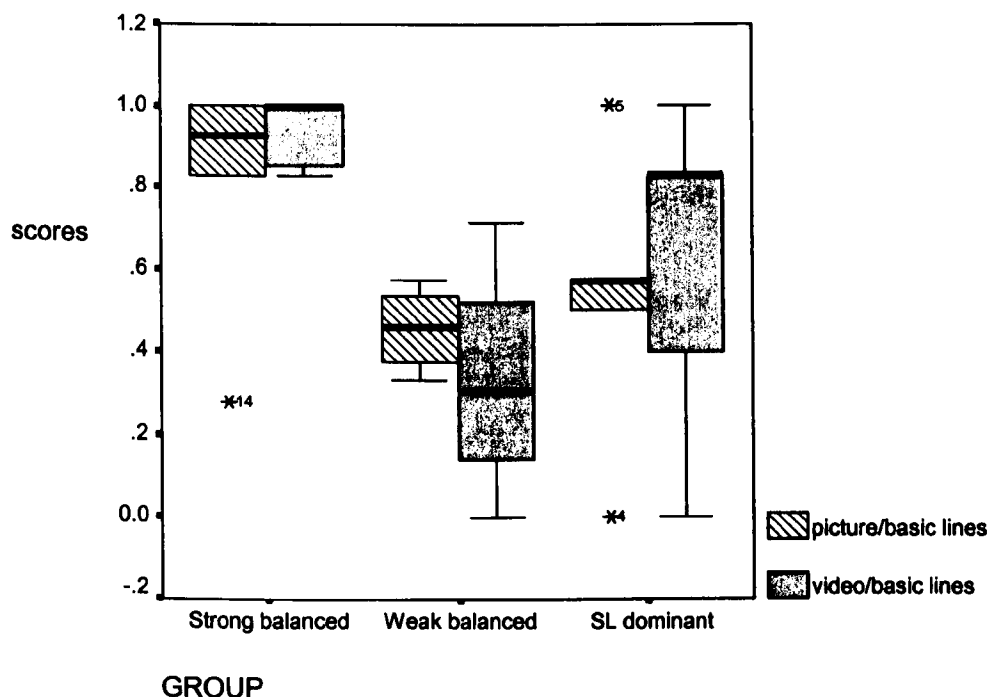
Figure 7-2: Performance on basic story line production of the three groups in video and picture material

Regarding the <u>affective information</u> in the picture task there seems to be little difference in the performances of the three groups. However in the video task the strong balanced performance increases, the weak balanced decreases and the SL dominant remains at the same level (Table 7-7).

The results show that in this measurement we have *a main effect of groups*, and *an interaction effect* of group and material.

The *main effect* of group is $F (2, 14)= 4.723$, $p = 0.027$ and the pairwise comparison between the strong-balanced group and weak-balanced group was significant ($p = 0.038$). Table 7-8 shows the comparisons. For a graphic representation see Figure 7-3.

Table 7-7: Descriptive Statistics for affective information production of the three groups in video and picture material

Material	Group	Mean	Std. Deviation	N
PICTURE – AFFECTIVE INFO	Strong balanced	0.1338	0.115	8
	Weak balanced	0.1450	0.149	4
	SL dominant	0.1140	0.0589	5
	Total	0.1306	0.105	17
VIDEO – AFFECTIVE INFO	Strong balanced	0.2600	0.092	8
	Weak balanced	0.0000	0.000	4
	SL dominant	0.1120	0.138	5
	Total	0.1553	0.143	17

Table 7-8: Pairwise comparisons of affective information production of the three groups in video and picture material

(I) Group	(J) Group	Mean Difference (I-J)	Standard. Error	Significance
Strong balanced	Weak balanced	*0.124	0.043	0.038
	SL dominant	0.083	0.040	0.171
Weak balanced	Strong balanced	-*0.124	0.043	0.038
	SL dominant	-0.040	0.048	1.000
SL dominant	Strong balanced	-0.083	0.040.	0.171
	Weak balanced	0.040	0.048	1.000

The *interaction effect* between groups and material was also significant [F $(2,14)=4.124$, $p=0.039$]. The interaction effect appears more clearly in Figure 7-3. The video *significantly improved* the strong balanced bilinguals' performance; *significantly impaired* the weak balanced bilinguals' performance and had *no significant effect* on SL-dominant performance.
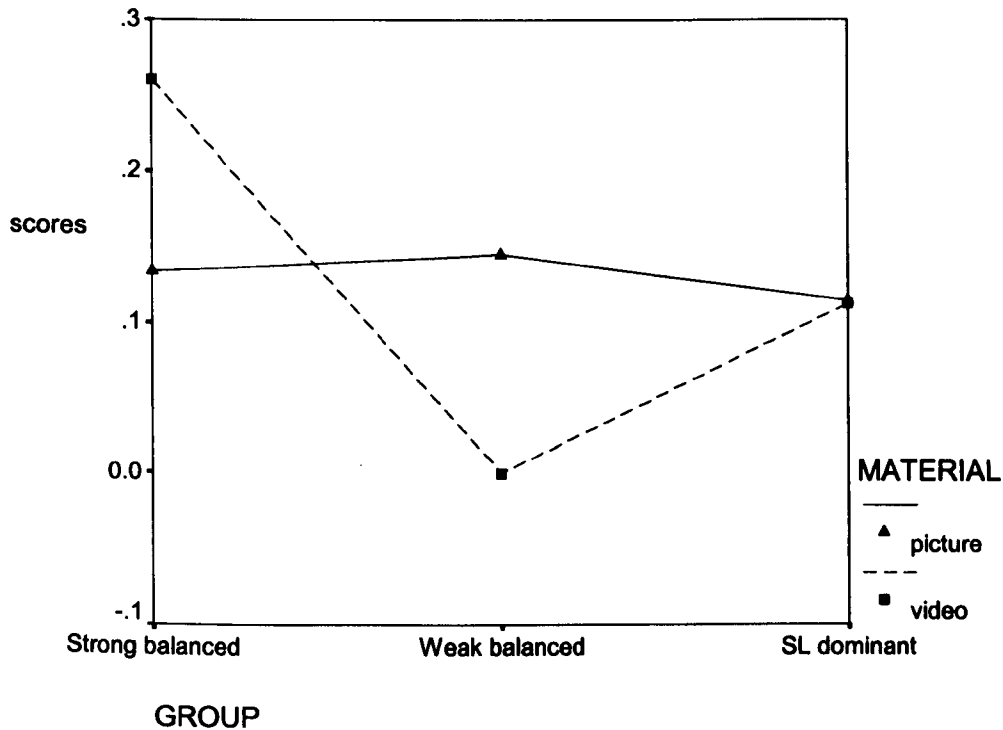
Figure 7-3: Performance on affective information: interaction of groups and material.

7.2 Level 2: Organisation of stories

At the second level of analysis, the way the information was structured was investigated. This was measured through the use of tree diagrams (see *The organisation of the content*, 1.3.2.2) specifically those designed by Langer (1986). The approach had to be modified, since the language produced in the present research was quite deviant from that for which the tree diagrams were originally designed. In Langer's research the units of organisation were "content units", i.e. rhetorical predicates, rather than clauses. Here, the branching points on the tree diagrams are based on clauses instead of propositions or T-Units and are determined more strictly by the presence of connectors and other grammatical words. The basic relationships found in the narratives are the following:

- **S** Sequence: steps, temporal sequence of episodes. Always occurs at the top of the tree diagram as the superimposed rhetorical structure of the genre of narrative as well as the episodes' structure.

- **E** Event (verbs of doing)

- **D** Description (verbs of state e.g. be, have, become, etc)

- **Exp** Explanation (because, because of, etc)

- **Ev** Evaluation: a comment by the narrator on some aspect of the story

- **C** Cause and/or Consequence: the causal relationship between two clauses and/or antecedent and consequencent (so, in order to, as a result, consequently)

- **Adv** Adversative (but, or)

- **Res/ Rem/ Q-A** Response/Remark & Question-Answer

(Langer, 1986). Extensive elaboration of the criteria used for deciding the content of the clauses can be found in appendix 7.

The top of the diagram is determined by the rhetorical structure of the narrative as a genre, which is always a temporal sequence. The next level represents the episodic sequence the writer has used. From the third level and on is the arrangement of the clauses into semantic nodes. All the stories have these three levels. The deeper they go from there the more complex they are. The more nodes in each level the more information-rich they tend to be. The more variety in the nodes, the more sophisticated the story.

Figure 7-4: Fragment of a tree diagram for story organisation

Temporal Sequence   *LEVEL 1*

Episode1   Episode2   Episode X   Episode X+   *LEVEL 2*

Event   Event   Event   Description   *LEVEL 3*
18   20   21   23

Description   Adversative   Explanation   *LEVEL 4*
19   22   24
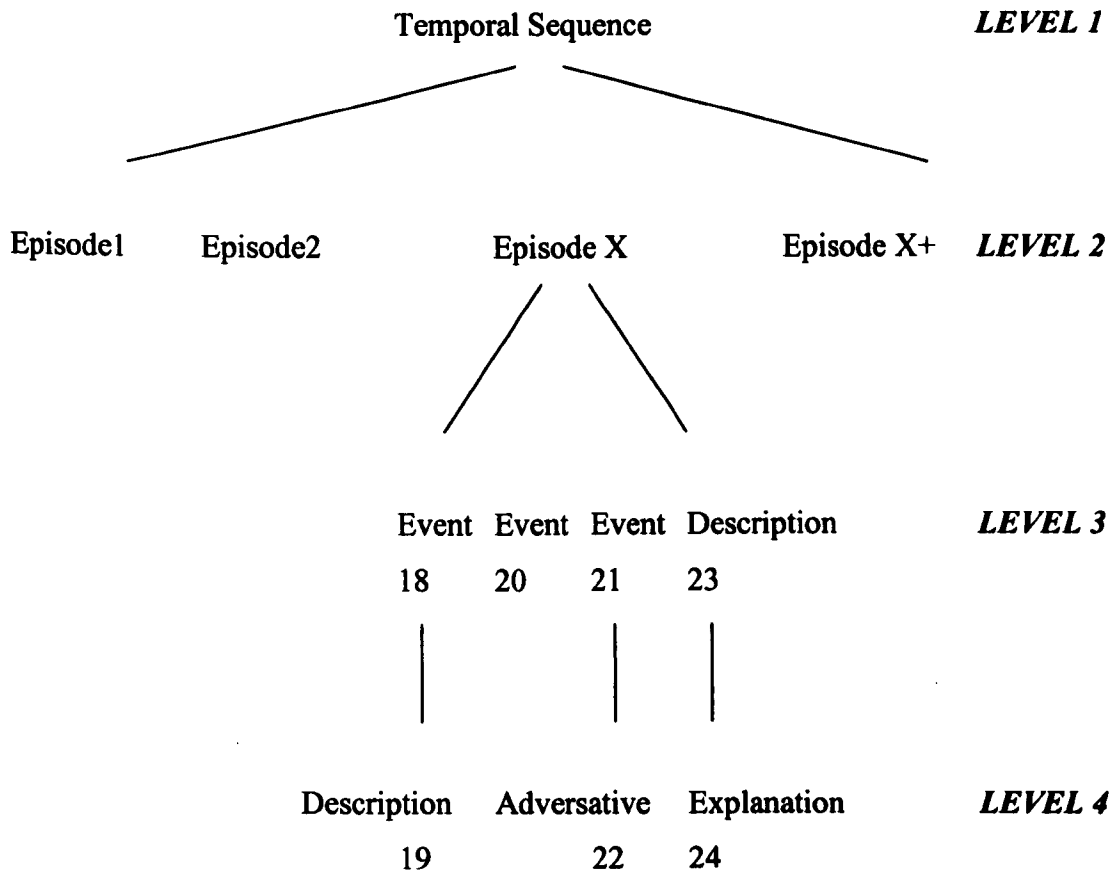
Figure 7-4 is an example of a fragment of a tree diagram, indicating the structural relationships in a story, specifically that of EVMOU's Strawberry Lady (see full example in Appendix 7). Four levels are represented, the deepest has 3 clauses, and there are 4 different types of relationships presented (Event/ Description/ Adversative/ Explanation). The numbers under the relationships refer to clauses in the narrative.

E.g: 18) *Some other time again he saw a lady*

     19) *who has the strawberries*

     20) *was running*

     21) *and followed*

     22) *but lady disappeared in the wood*

     23) *But is boy disappointing*

     24) *because not is-found the strawberries*

A few things about the branching have to be explained. Clauses, which describe events, are placed on the same level. Clauses are placed in deeper levels when they are subordinate clauses. Coordinate clauses are placed on the same levels when they are connected with the "and" connector but other connectors such as "but" and "or" are deeper levels as they are adversatives or alternatives.

The deviant use of language often caused problems in deciding the content of the clauses as sometimes verbs and/or connectors and other words were missing or one verb was used in the place of another. A detailed description of the criteria used in problematic clauses to decide on their content, can be found in Appendix 7, Section 17.1.

7.2.1 Results for organisation of stories

On the variety of relations produced in narratives the groups again performed differently (Table 7-9) with the strong balanced performing better than the weak balanced but not significantly better than the SL dominant (Table 7-10). The main effect of groups is $F (2, 14)= 6.646$, $p = 0.009$ and the pairwise comparison between the strong-balanced and weak balanced groups was significant ($p = 0.014$). In this analysis, the SL dominant group more closely resembled the weak balanced group than the strong balanced group although results were not significant. This can be seen more clearly in Figure 7-5.

Table 7-9: Descriptive Statistics of variety of relationships production of the three groups in video and picture material

Material	Group	Mean	Std. Deviation	N
picture/ relationship variety	Strong balanced	4.3750	1.4079	8
	Weak balanced	2.2500	.9574	4
	SL dominant	2.2000	.4472	5
	Total	3.2353	1.5219	17
video/ relationship variety	Strong balanced	5.1250	1.2464	8
	Weak balanced	2.0000	.8165	4
	SL dominant	3.6000	3.1305	5
	Total	3.9412	2.2212	17

Table 7-10: Pairwise comparisons of variety of relationships production of the three groups in video and picture material

(I) Group	(J) Group	Mean Difference (I-J)	Standard. Error	Significance.
Strong balanced	Weak balanced	*2.625	0.783	0.014
	SL dominant	1.850	0.729	0.071
Weak balanced	Strong balanced	*-2.625	0.783	0.014
	SL dominant	-0.775	0.858	1.00
SL dominant	Strong balanced	-1.850	0.729	0.071
	Weak balanced	0.775	0.858	1.00

Figure 7-5 as well as Table 7-9 show that the weak balanced and the SL dominant groups perform at a similar level, although they react differently to the material: writing from video is slightly better for the SL dominant group and writing from pictures is slightly better for the weak bilingual group. The results on variety of relations did not produce any material or interaction effect.
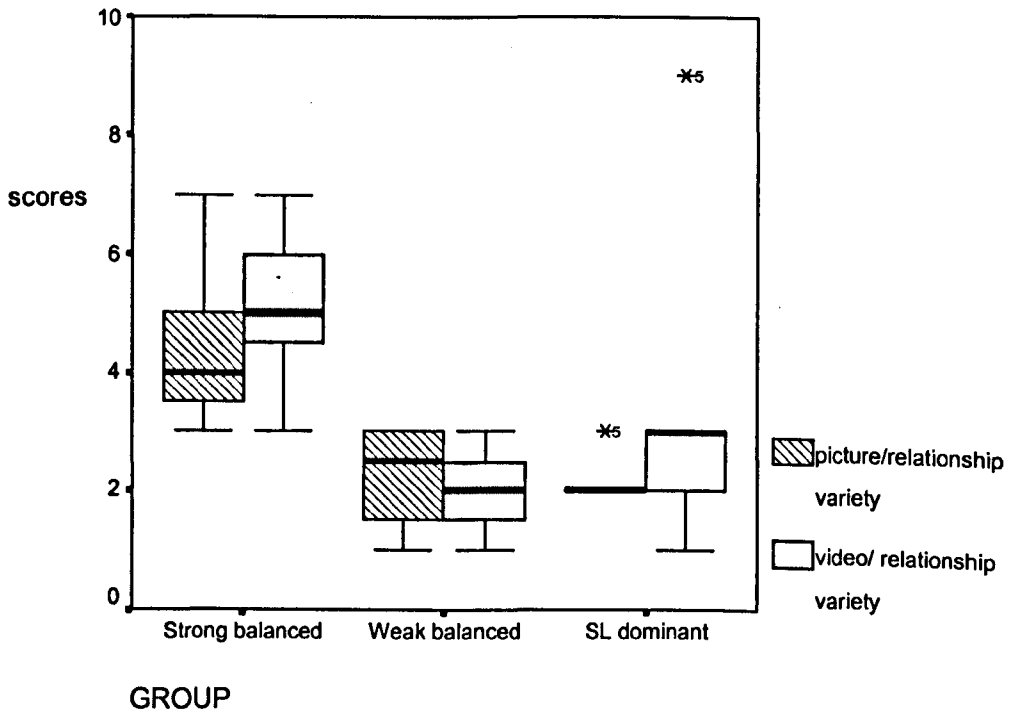
Figure 7-5: Performance on variety of relationships production of the three groups in video and picture material

On the 2nd level of organisation there were no differences among the groups perhaps because this is the level where the events of the story take place and everybody more or less had some story development. Table 7-11 shows that the means are more or less the same within tasks but it also shows a big difference between tasks. This difference between tasks was significant (main effect of material: F (1,14) =7.363, p=0.017). More specifically, in Table 7-12 we see that the video produced significantly better results than the picture task on the 2nd level –the positive direction of the mean difference means that the first material of the table (video) did better than the second material (picture).

For graphic representation of this result see Figure 7-6. The boxplots show the video task, eliciting better results than the picture. On the 2nd level of organisation no interaction effects were elicited.

Table 7-11: Descriptive Statistics for 2nd level of story organisation

	GROUP	Mean	Std. Deviation	N
picture/organisation-Strong balanced Level 2		4.0000	.7559	8
	Weak balanced	3.0000	.8165	4
	SL dominant	3.2000	1.9235	5
	Total	3.5294	1.2307	17
video/organisation-Strong balanced Level 2		5.1250	.6409	8
	Weak balanced	3.7500	.5000	4
	SL dominant	3.2000	1.7889	5
	Total	4.2353	1.3477	17

Table 7-12: Pairwise Comparisons of the two materials picture & video on 2nd level of story organisation

(I) MATERIAL	(J) MATERIAL	Mean Difference (I-J)	Std. Error	Sig.
video	picture	*0.625	.230	0.017
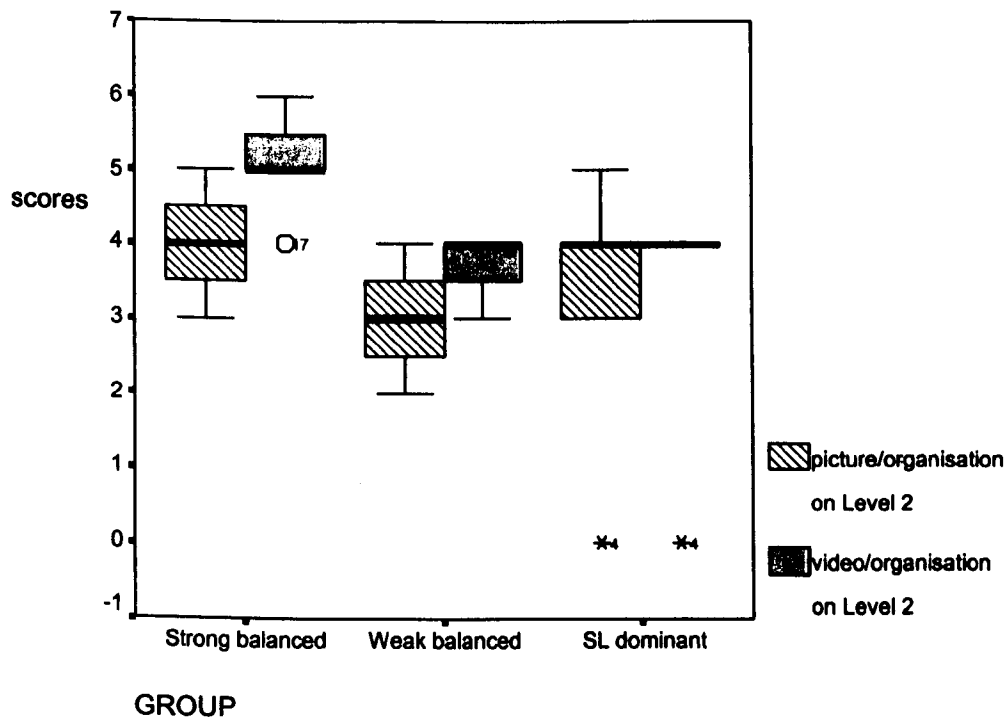
Figure 7-6: Story organisation (2nd level)

On the 3<u>rd</u> <u>level of organisation</u> the group differences re-appear (see Table 7-13). There is a main group effect of F (2, 14)= 10.540, p=0.002 and the pairwise comparisons (Table 7-14) show that the strong bilingual differs significantly from both the weak bilingual and the SL dominant group. This means that their performances (SL dominant and weak bilingual) are more closely related.

Table 7-13: Descriptive Statistics for 3rd level of organisation

Material	Group	Mean	Std. Deviation	N
picture/organisation-Strong balanced Level 3		29.2500	15.1257	8
	Weak balanced	12.5000	2.5166	4
	SL dominant	14.2000	8.8713	5
	Total	20.8824	13.6925	17
video/organisation-Strong balanced Level 3		30.8750	7.6052	8
	Weak balanced	10.0000	.0000	4
	SL dominant	21.2000	10.6160	5
	Total	23.1176	11.3020	17

Table 7-14: Pairwise comparisons for 3rd level organisation

(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig.
Strong balanced	Weak balanced	*18.813	4.373	.002
	SL dominant	*12.362	4.071	.027
Weak balanced	Strong balanced	-*18.813	4.373	.002
	SL dominant	-6.450	4.790	.599
SL dominant	Strong balanced	-*12.362	4.071	.027
	Weak balanced	6.450	4.790	.599

Figure 7-7 shows the results better: the strong balanced is doing better than the other two groups in both tasks followed by the SL dominant and eventually the weak balanced group, but without a significant difference between the latter two. Note that the SL dominant group is doing better in the video task and the weak balanced is doing better in the picture task although the difference cannot be considered statistically significant. The strong bilingual seems to have the same behavior as the SL dominant, favoring the video task to the picture one.
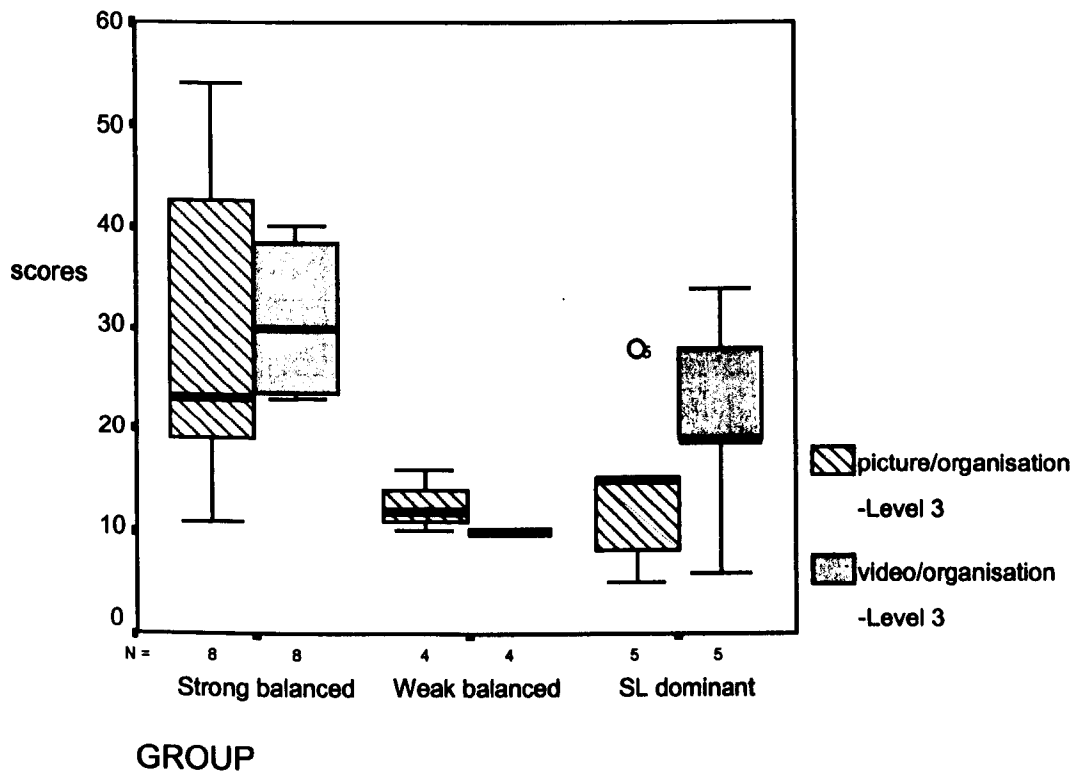
Figure 7-7: Performance on the 3rd level of organisation

On the 4th level of organisation we have the same of results as the ones for the 3rd level as far as groups are concerned. Strong balanced group is doing significantly better than both the other groups in both tasks (Table 7-15 & Table 7-16). The main group effect on the 4th level of the story organisation is F (1,14)=5.924, p=0.029.

Table 7-15: Descriptive Statistics for 4th level of organisation

Material	Group	Mean	Std. Deviation	N
picture/organisation-Strong balanced Level 4		4.5000	4.2426	8
	Weak balanced	0.5000	1.0000	4
	SL dominant	1.0000	.0000	5
	Total	2.5294	3.4300	17
video/organisation-Strong balanced Level 4		7.3750	1.0607	8
	Weak balanced	1.5000	1.7321	4
	SL dominant	3.2000	2.4900	5
	Total	4.7647	3.0726	17

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Table 7-16: Pairwise Comparisons for 4th level organisation

(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig.
Strong balanced	Weak balanced	*4.938	1.127	.002
	SL dominant	*3.838	1.049	.008
Weak balanced	Strong balanced	-*4.938	1.127	.002
	SL dominant	-1.100	1.235	1.000
SL dominant	Strong balanced	-*3.838	1.049	.008
	Weak balanced	1.100	1.235	1.000

In this measurement there is also a material effect [F (1, 14) = 5.924, p= 0.029] and more specifically the video material produces better results on the 4th level of organisation, than the picture material (Table 7-17).

Table 7-17: Pairwise Comparisons of the two materials (picture & video)

(I) MATERIAL	(J) MATERIAL	Mean Difference (I-J)	Std. Error	Sig.
video	picture	*2.025	0.832	0.029

The main effects of group and material are presented in Figure 7-8.
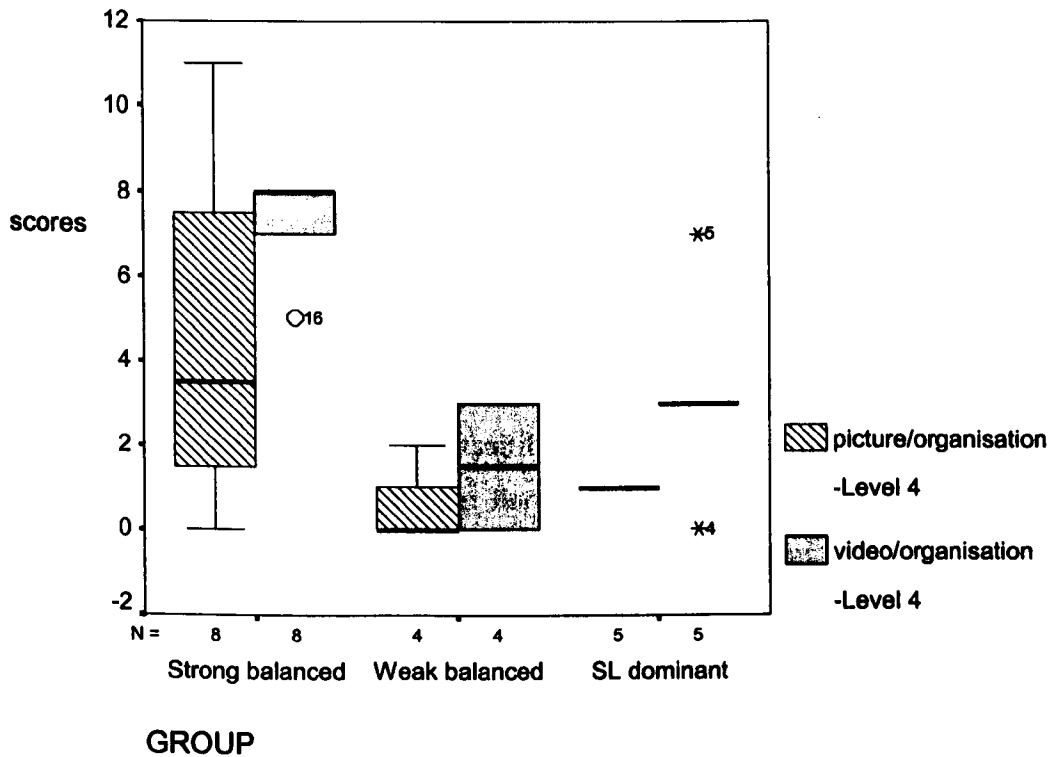
Figure 7-8: Story organisation (4ᵗʰ level)

The 5ᵗʰ level of organisation also did not produce any significant effects as very few students managed to reach this level.

7.3 Level 3: Text characteristics of stories

These are standard measurements in writing research, connected with the complexity and well-formedness of written language (see: *Segmenting narratives and measuring narrative complexity*, 1.3.2.4). The measures used here are:

- *Number of words per text.*

- *Number of T-Units (T-U) per text.* In present research the T-Us were equal to sentences. A sentence in well-formed narratives was defined from fullstop to fullstop.

- *Number of clauses.* Clause is the group of words with a verb and a subject and they are part of T-Us.

- Clauses per T-Units i.e. verbs per sentences.

- T-Unit length i.e. number of words in a sentence

- Subordinate clauses (correctly used subordinate conjunctions) & subordinate index (percentage of text with subordination). Subordination was judged by the presence of complementisers and subordinate connectors.

- Coordinate clauses (correctly used coordinate conjunctions) & coordinate index (percentage of text with coordination). Coordination was judged by the coordinate connectors or by the presence of verbs in a coordinate manner without necessarily the presence of connectors.

- T-Unit complexity i.e. modifications, complex vocabulary, use of elaborated structures such as: verb/noun modifications, unusual vocabulary, passives, participles, perfect tenses, etc.

- Unknown structures & Unknown structure index (all deviant & and unintelligible structures). Here are all the structures that could not be decoded as meaningful grammatical structures.

Once again the deviant language use meant that the above definitions could not be applied always. Again specific criteria were developed in order to define deviant T-Units, clauses and T-Unit complexity. These criteria can be found in Appendix 7, Section 17.2.

7.3.1 Reliability of text coding

The analysis of the texts was carried out by the researcher. The criteria and techniques used for the analysis were checked for reliability and an independent researcher was employed to double check the methods used. A standard 20% sample of the entire data set was double-checked. The independent researcher was Greek and familiar with sign language issues. Before she assessed the written texts, she was trained by the researcher on the criteria used to examine the texts (see Chapter 7).

The 20% sample of the data consisted of 8 written texts. This means that four students were chosen each providing two written texts. Two students came from the strong balanced bilingual group one from the weak balanced bilingual group and one

from the sign language dominant group. The independent researcher was asked to look at the information level, the organisation level and the overall text characteristics level. It was judged by the researcher that a substantial agreement on three out of the four levels of analysis would show a good overall agreement.

The correlations between the researcher and the independent rater, on 19 different sets of items (see Table 7-18) were very high achieving statistical significance on 13 out of the 19 items, giving an overall 68% of agreement. The Spearman's correlations are presented in Table 7-18:

Table 7-18: Correlations of the researcher and the independent rater on text analysis

Item	Spearman's correlation
Story grammar info	0.816**
Basic storylines info	0.976**
Descriptive info	0.295
Affective info	0.319
Number of relations in text organization	0.942**
Number of relations on 2nd level	0.783*
Number of relations on 3rd level	0.893**
Number of relations on 4th level	0.704
T-U complexity	0.827*
T-Us number	0.928**
T-U length	0.571
Number of clauses	1.000**
Subordinate clauses	0.829*
Subordinate index	0.119
Coordinate clauses	0.973**
Coordinate index	0.938**
Unknown structures	0.755*
Unknown structure index	0.707
Clauses per T-U	0.810*

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

7.3.2 Results for text characteristics

On this measure, as expected, the strong bilingual group performed significantly better than either of the other groups (i.e. the strong bilingual is doing better in writing because it is the only group with good written skills). The text characteristics were similar for the weak balanced and the SL dominant groups. The SL dominant group was not the middle group any more as now it more closely resembled the weak balanced bilingual. More specifically these measurements are:

1. Finished – unfinished stories: the 3 unfinished stories in the data came from the SL dominant and weak bilingual groups. This may mean that they faced more difficulties in writing.

2. T-Us complexity: both SL dominant and weak bilingual groups used similarly few sentence-enhancing techniques.

3. Number of words: the strong balanced used more words while producing the stories than the other two groups. It may be interesting in this measurement to indicate the difference with a few descriptive statistics. Table 7-19 shows that the strong balanced group in the picture task produced three times the narrative of the weak balanced and SL dominant groups. In the video task this ratio between the strong balanced and the weak balanced is also 3 but it is reduced to 2 when comparison is made with the SL dominant group (i.e. the SL dominant group raises the average number of words from 61.6 to 90.8 between the tasks which is a considerable improvement yet not statistically significant):

Table 7-19: Descriptive Statistics for number of words in texts

Material	Group	Mean	Std. Deviation	N
picture/ number of words in text	Strong balanced	164.875	108.132	8
	Weak balanced	61.500	20.074	4
	SL dominant	61.600	39.080	5
	Total	110.176	91.644	17
video/ number of words in text	Strong balanced	157.125	39.494	8
	Weak balanced	52.000	12.909	4
	SL dominant	90.800	48.951	5
	Total	112.882	58.055	17

4. number of clauses

5. number of subordinate clauses & subordinate index

6. number of coordinate clauses & coordinate index

There were three measurements though which elicited different results: the *T-Us length,* the *clauses per T-U,* and the number of *unknown structures & unknown structure index.*

More specifically, in T-Us length the groups' performance produced differences (Table 7-20). The group effect was significant (F (2, 14)= 4.916, p=0.024) between the strong balanced and the weak balanced only (Table 7-21). SL dominant produced an intermediate performance (see Figure 7-9).

Table 7-20: Descriptive Statistics for T-U length

Material	Group	Mean	Std. Deviation	N
picture/ length of t-units in text	Strong balanced bilingual	11.5013	4.3955	8
	Weak balanced bilingual	7.1700	0.7270	4
	SL dominant	7.7280	2.3833	5
	Total	9.3724	3.7809	17
video/ number of words of t-unit in text	Strong balanced bilingual	10.9150	3.1362	8
	Weak balanced bilingual	6.0775	0.3832	4
	SL dominant	7.3440	2.2762	5
	Total	8.7265	3.2206	17

Table 7-21: Pairwise Comparisons for T-U length

(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig.
Strong balanced	Weak balanced	*4.584	1.660	0.046
	SL dominant	3.672	1.546	0.097
Weak balanced	Strong balanced	-*4.584	1.660	0.046
	SL dominant	-0.912	1.819	1.000
SL dominant	Strong balanced	-3.672	1.546	0.097
	Weak balanced	0.912	1.819	1.000
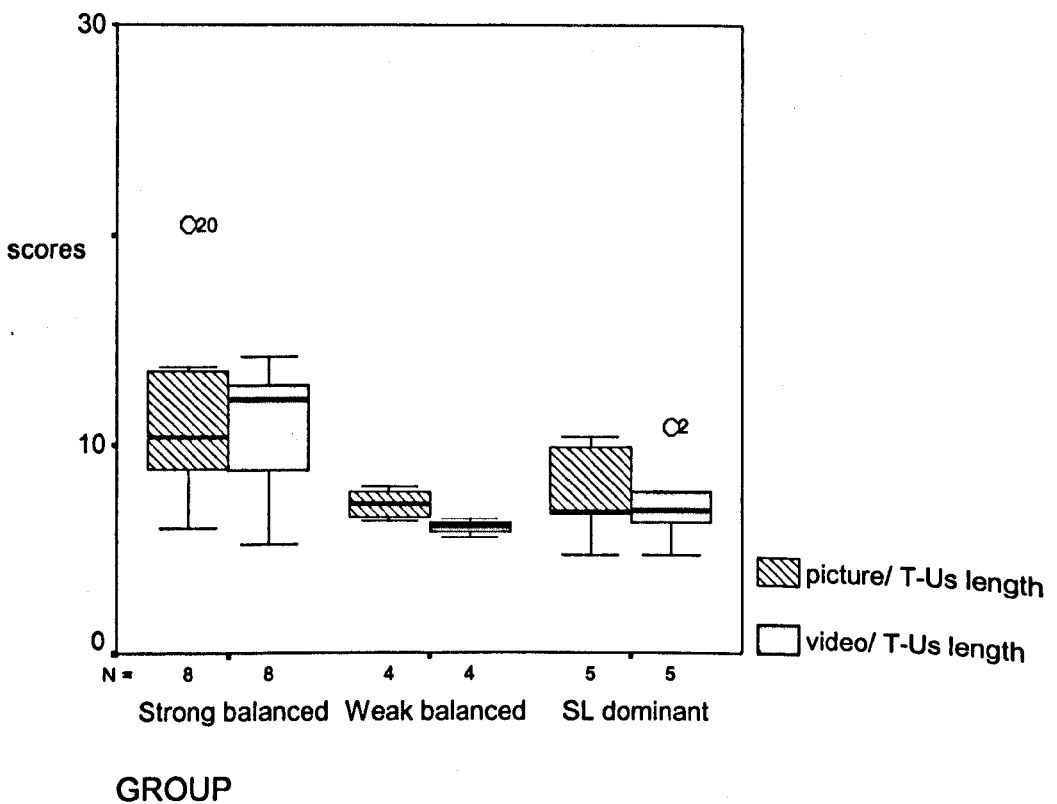
Figure 7-9: T-Us length performance of the groups

The measurements for <u>number of clauses per T-U</u> are shown in Table 7-22. There is difference in the performance of the groups [group effect $F_{(2, 14)} = 5.467$, p=0.018], which occurs only between the strong balanced, and the weak balanced (see Table 7-23). Figure 7-10 illustrates the performances of the groups.

Table 7-22: Descriptive Statistics for clauses per T-Us

Material	Group	Mean	Std. Deviation	N
picture/ number of clauses per T-U	Strong balanced	2.5137	.9489	8
	Weak balanced	1.5600	.3608	4
	SL dominant	2.0460	.7172	5
	Total	2.1518	.8387	17
video/ number of clauses per T-U	Strong balanced	2.7063	.7388	8
	Weak balanced	1.3750	.1038	4
	SL dominant	1.7480	.3925	5
	Total	2.1112	.7957	17

Table 7-23: Pairwise Comparisons for number of clauses per T-Us

(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig.
Strong balanced	Weak balanced	*1.143	0.364	0.022
	SL dominant	0.713	0.339	0.162
Weak balanced	Strong balanced	-*1.143	0.364	0.022
	SL dominant	-0.429	0.399	0.900
SL dominant	Strong balanced	-0.713	0.339	0.162
	Weak balanced	0.429	0.399	0.900
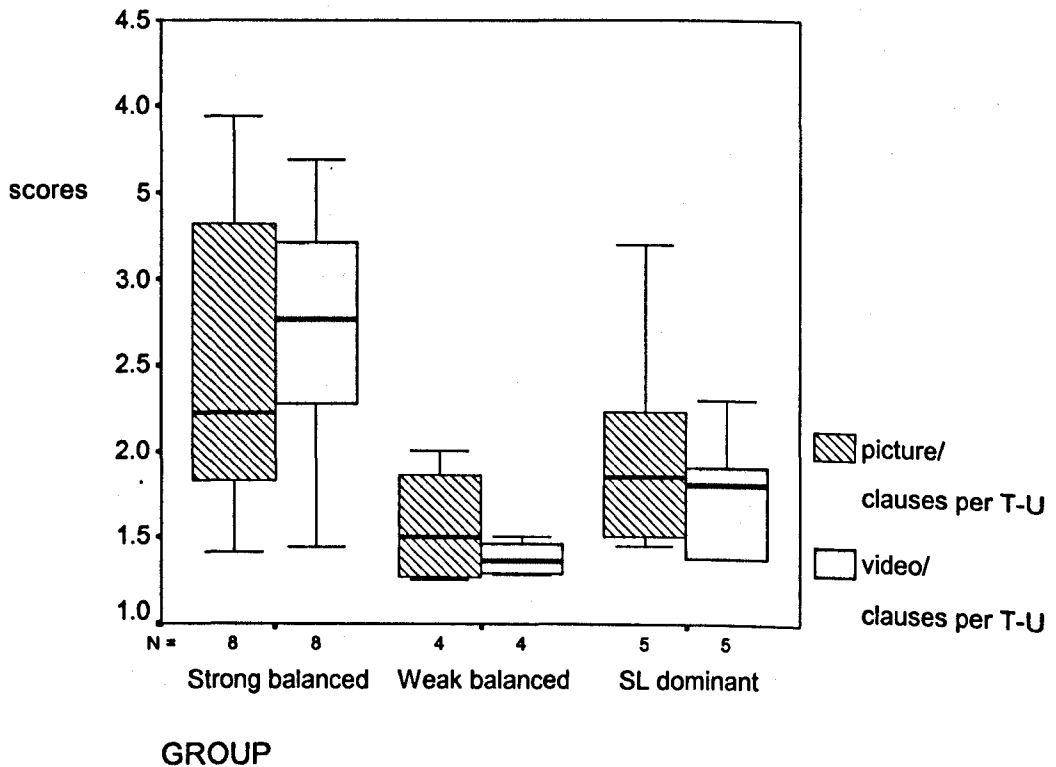
Figure 7-10: Number of clauses per T-Us

The third measurement of <u>unknown structure</u> follows. The results of the unknown structure index are only presented here as both (i.e. the number and the index of unknown structures) have similar trends. From the table with the descriptive statistics we see that the performances are reversed: the strong bilingual has the smallest index of unknown structures followed by the weak bilingual and the SL dominant –which has the largest- (see Table 7-24). This difference of groups was significant [main group effect: $F (2, 14) = 7.983$, $p= 0.005$] and the significance was between the SL dominant and the strong balanced group making the weak balanced the middle group (Table 7-25 & Figure 7-11).

Table 7-24: Descriptive Statistics for unknown structure index

Material	Group	Mean	Std. Deviation	N
picture/ unknown structure index	Strong balanced	0.066	0.079	8
	Weak balanced	0.180	0.080	4
	SL dominant	0.524	0.323	5
	Total	0.227	0.266	17
video/ unknown structure index	Strong balanced	0.133	0.173	8
	Weak balanced	0.170	0.110	4
	SL dominant	0.414	0.227	5
	Total	0.224	0.211	17

Table 7-25: Pairwise Comparisons of unknown structure index

(I) GROUP	(J) GROUP	Mean Difference (I-J)	Std. Error	Sig.
Strong balanced	Weak balanced	-0.075	0.101	1.000
	SL dominant	-*0.369	0.094	0.005
Weak balanced	Strong balanced	0.075	0.101	1.000
	SL dominant	-0.294	0.110	0.056
SL dominant	Strong balanced	*0.369	0.094	0.005
	Weak balanced	0.294	0.110	0.056

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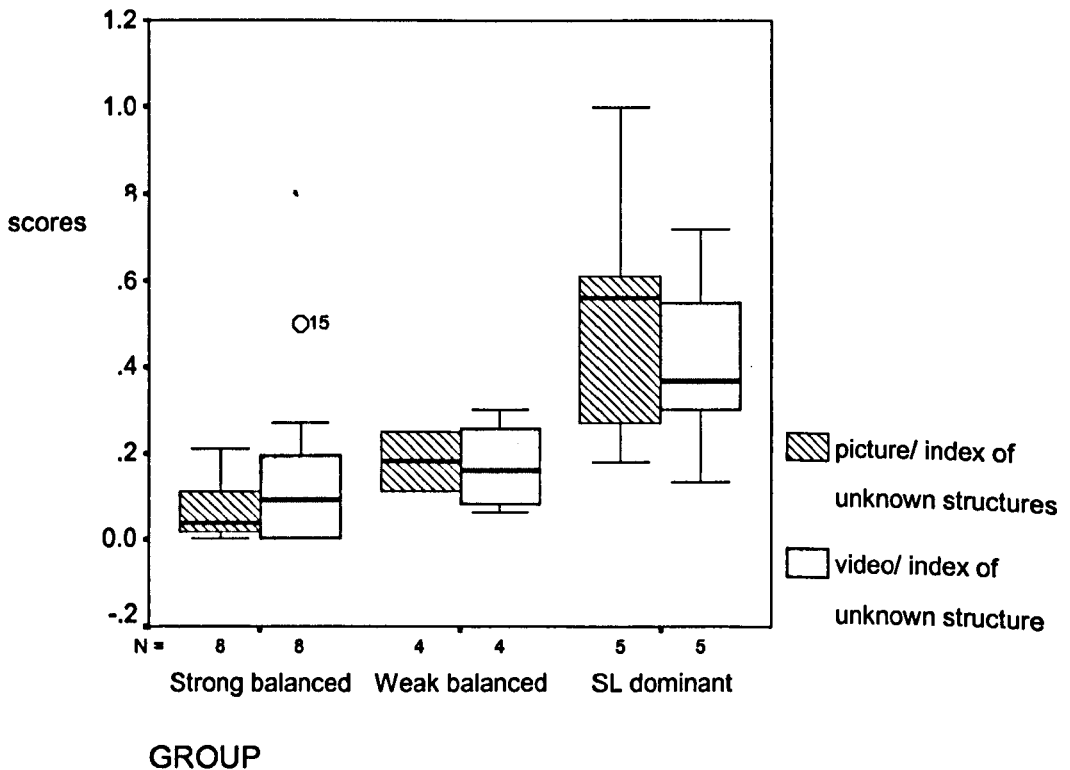
Figure 7-11: Unknown structure index

7.4 Level 4: Grammatical structures of stories

This analysis focused on language form, with a particular focus on the weaker parts of the texts: the erroneous forms. The categorisation of erroneous structures, which were used in the present study, is an adaptation from James's (1998) (see Appendix 4). The reason for using this categorisation is that it approaches the errors from a bilingual point of view. The typical type of errors made by L2 learners, are: omissions, over-inclusions, misselections, misorders and blends. Also the errors are seen in different contexts and order of importance, which is: errors of graphemes<errors of grammar & lexis<errors of discourse (see *Error analysis*, 3.4.2).

The decisions concerning what constitutes an "error" and how to categorise errors, is a complicated process. Categorising an error assumes that you know more or less the

intentions of the writer as to the final product, which is not always possible. In order to identify the errors safely it was decided that the best way was to correct the texts first and then place the corrections made into categories. A **corrected** text is not a **correct** text. The result is that many of the errors in the texts were left as they were but the corrections made were the ones that produced the least assumptions about the writers' intentions and knowledge. The criteria used for the corrections are:

o Corrections do not change the meaning of the story. However they were made in the direction of the meaning of the particular story and in combination with the material, which produced the story, especially the video material (i.e. what the signer said).

o When a correction was made there should not be another possible correct answer.

o When, in the correcting process, a new word had to be added, this could not be a content word but only a function word. Exceptions were verbs of state and verbs of saying & communication.

o It is possible to substitute a content word for a similar word.

It should be said here that most of the time the true knowledge and intentions of the writers' could be retrieved either from the context, or from the material or from the writer's consistency of error (e.g. if the error was repeated numerous times in the text).

After correcting the texts, the corrected errors were categorised in a table (see Table 7-26). The first column described the <u>type of error</u> (omissions, over-inclusions, misselections, misorders, blends) and the first row described the <u>level of error</u> (substance errors, grammar errors, lexis errors, discourse errors) in the text. The level of errors follows a "bottom-up" direction, which is the preferred direction when analysing products and not processes (James, 1998). Table 7-26 gives definitions and some examples of the error categories.

It is important to mention here that this categorisation took place in order to perform statistical and numerical calculations and so the results from this categorisation are included in the quantitative results. A qualitative more elaborated and descriptive *error analysis* also took place and will presented in Chapter 8.

Table 7-26: Error categorisation: definitions and examples

Level	SUBSTANCE	TEXT		DISCOURSE
	Errors on Grapheme/Spelling/ Punctuation This is the group of errors that concerned punctuation use and mainly grapheme misuse in a word. Punctuation was rarely under attention because it is a highly sophisticated writing skill and relies heavily on the writer's intentions when segmenting his/her text. The few times that it was measured, it concerned quotation marks in dialogues.	**GRAMMAR** *Errors on nouns, verbs, articles, prepositions, adjectives, adverbs, conjunctions, and particles.* These items were also segmented into even smaller variables according to the nature of the error (i.e. gender, tense, mood, number, person errors).	**LEXIS** *Errors in content words* There were relatively few errors on the lexis level	*Cohesion / coherence* Errors on the underlying relations that bind a text. Disruption on the overall discourse theme.
Modification				
Omission	Omission of grapheme(s): e.g. to lve x = to love√			Incomplete sentences (omission errors) e.g. One the lady.
Over-inclusion	Overinclusion of grapheme(s): e.g. to st*f*eal x = to steal√	Overinclusion of grammatical words: e.g. The boy *is* sleeping x[25]	Overinclusion of content word: e.g. The *lady woman* holds a basket x =	Packed information i.e. many nouns and/or verbs packed together e.g. He-fell he-afraid the child he-see the dog he-went, he-afraid the bee
Misselection	Misselection of grapheme(s): *e.g.* zuddenly x = suddenly √	Misselection of grammatical words such as: choosing the wrong gender for nouns, articles and adjectives, choosing the wrong verb mood and tense aspect and person choosing the wrong number in nouns and verbs choosing the wrong case for articles and pronouns etc.	Choosing the transitive verb instead of the intransitive of the same root verb or the other way round: I-move-something vs. I-am-moving (κουνώ vs. κουνιέμαι)	Inconsistency of tenses/ Maintenance of characters with only indefinite deixis (misselection errors) e.g. The salesman *gave* one *I-follow* grandma *will go* (tense inconsistency) e.g. The boy fell *a deer. A deer* is angry. (maintenance with indefinite deixis)
Misorder	Misorder of grapheme(s): e.g. go*se* x = goes√		Reversed object-subject pattern: e.g. The vase is in the frog x	Misorder of chronological presentation of info e.g. The dog has inside vase because hurts his head.
Blend				Blending direct/indirect speech The child where is the frog
random				Irrelevant to the story information But the strange thief has his friends with they-live in the wood to look for the foods. (?)

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[25] In Greek this is considered ungrammatical. Present tense only has one aspect and cannot be modified like English

7.4.1 Results for grammatical structures of stories

Results on errors have not produced group effects or interaction effects. This means that all groups produced approximately the same amount and type of errors. In addition they responded to the materials in the same manner.

Nevertheless, there were a few significant or close to significance results on the material effect. From Table 7-27 we see that video in total produced more omissions of grammatical items on text level than the pictures.

Table 7-27: Descriptive Statistics for omissions of grammatical items

	GROUP	Mean	Std. Deviation	N
picture/text level-grammar-omission	Strong balanced bilingual	3.6250	2.6152	8
	Weak balanced bilingual	2.2500	1.8930	4
	SL dominant	2.2000	3.1937	5
	Total	2.8824	2.5952	17
video/text level-grammar-omission	Strong balanced bilingual	5.6250	2.5600	8
	Weak balanced bilingual	2.2500	1.5000	4
	SL dominant	5.2000	2.5884	5
	Total	4.7059	2.6402	17

More specifically, the stimulus material produced an effect that was close to significance on the "grammar – omission-on text level" category [F (1, 14)=4.348, p=0.056] (see Table 7-28).

Table 7-28: Pairwise Comparisons of picture & video for omissions of grammatical items

(I) MATERIAL	(J) MATERIAL	Mean Difference (I-J)	Std. Error	Sig.
video	picture	*1.667	0.799	0.056

Figure 7-12 shows that the video produced significantly more omission errors in the strong balanced and the SL dominant but there was less of the effect on the weak balanced group.
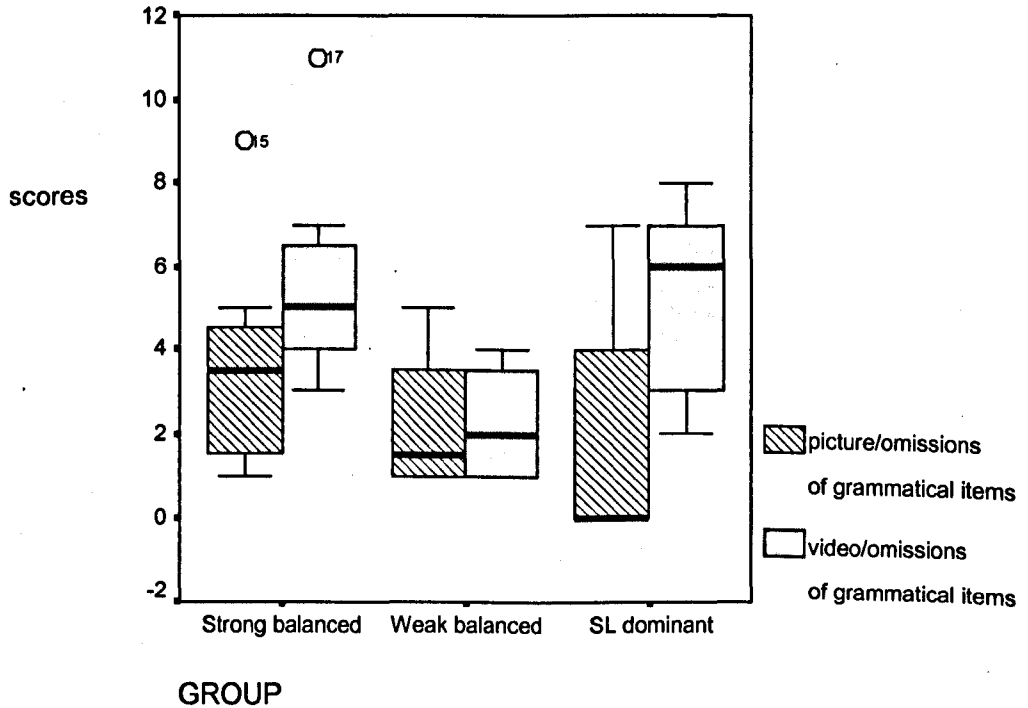
Figure 7-12: Omission errors of grammatical items on text level

As a result of the above some of the omission subcategories yielded significant results or ones which approached significance. In one case there was a difference in the subcategory of "omission of prepositions" (Table 7-29)

Table 7-29: Descriptive Statistics for omission of prepositions in texts

	GROUP	Mean	Std. Deviation	N
picture/text-grammar-omission-preposition	Strong balanced bilingual	0.2500	.4629	8
	Weak balanced bilingual	0.5000	1.0000	4
	SL dominant	0.6000	.8944	5
	Total	0.4118	.7123	17
video/text-grammar-omission-preposition	Strong balanced bilingual	1.5000	1.6903	8
	Weak balanced bilingual	0.5000	.5774	4
	SL dominant	1.6000	1.3416	5
	Total	1.2941	1.4038	17

This effect was close to significance [F (1,14)=4.178, p=0.060] (see Table 7-30) and Figure 7-13 shows that this effect was stronger in the SL dominant and strong bilingual group.

Table 7-30: Pairwise comparisons of picture & video in omitting prepositions

(I) MATERIAL	(J) MATERIAL	Mean Difference (I-J)	Std. Error	Sig.
video	picture	*0.750	0.367	0.060
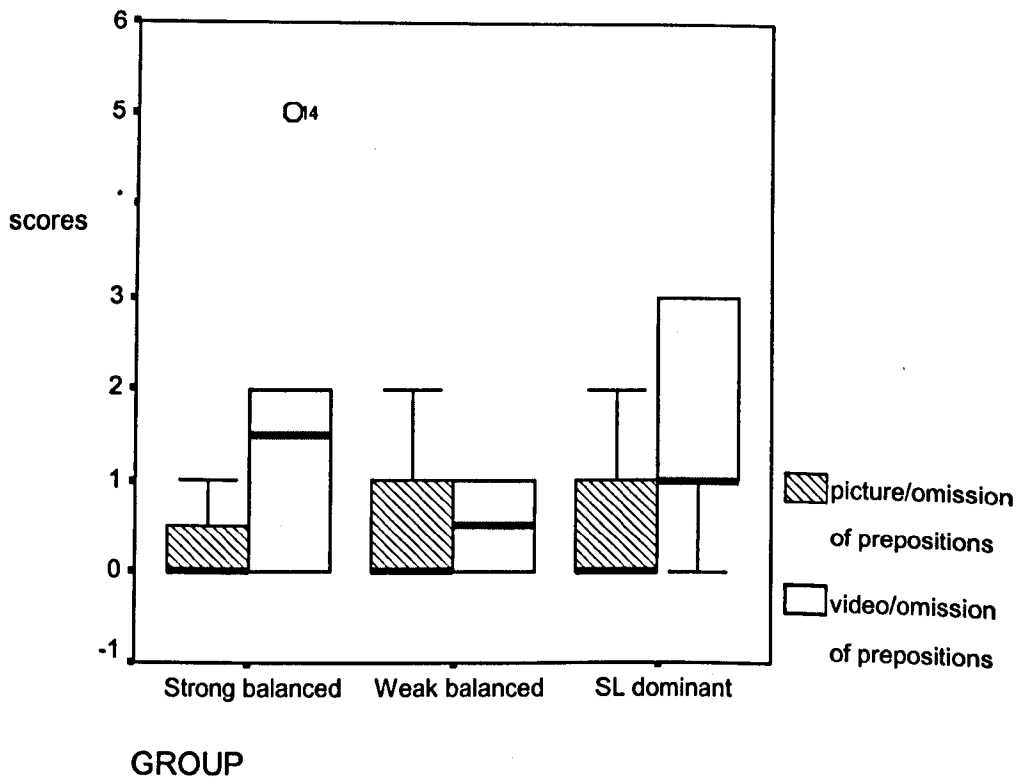
Figure 7-13: Omission of prepositions in texts

The second case of omission subcategory, which elicited statistically significant results on material effect, was the "omission of verbs". It must be explained here that the overwhelming majority of the verbs recorded as "omitted" fell into a broad category of state verbs (verbs of being, i.e. to be, to have, to appear) and communicative verbs (verbs of saying, i.e. to ask, to reply, to think, to say).

From the descriptive statistics (Table 7-31) we can see that the total omissions of verbs in the video task were three times more than the picture task.

Table 7-31: Descriptive Statistics for omission of verbs

	GROUP	Mean	Std. Deviation	N
picture/text-grammar-omission-verb	Strong balanced bilingual	0.625	1.188	8
	Weak balanced bilingual	0.500	1.000	4
	SL dominant	0.200	0.447	5
	Total	0.471	0.943	17
video/text-grammar-omission-verb	Strong balanced bilingual	1.250	0.886	8
	Weak balanced bilingual	0.750	0.500	4
	SL dominant	1.200	1.303	5
	Total	1.117	0.927	17

This was a significant difference for the materials [F (1,14)=5.149, p=0.040] (see Table 7-32) and all the groups produced this effect as shown in Figure 7-14.

Table 7-32: Pairwise comparisons of picture & video for omission of verb

(I) MATERIAL	(J) MATERIAL	Mean Difference (I-J)	Std. Error	Sig.
video	picture	*0.625	0.275	0.040
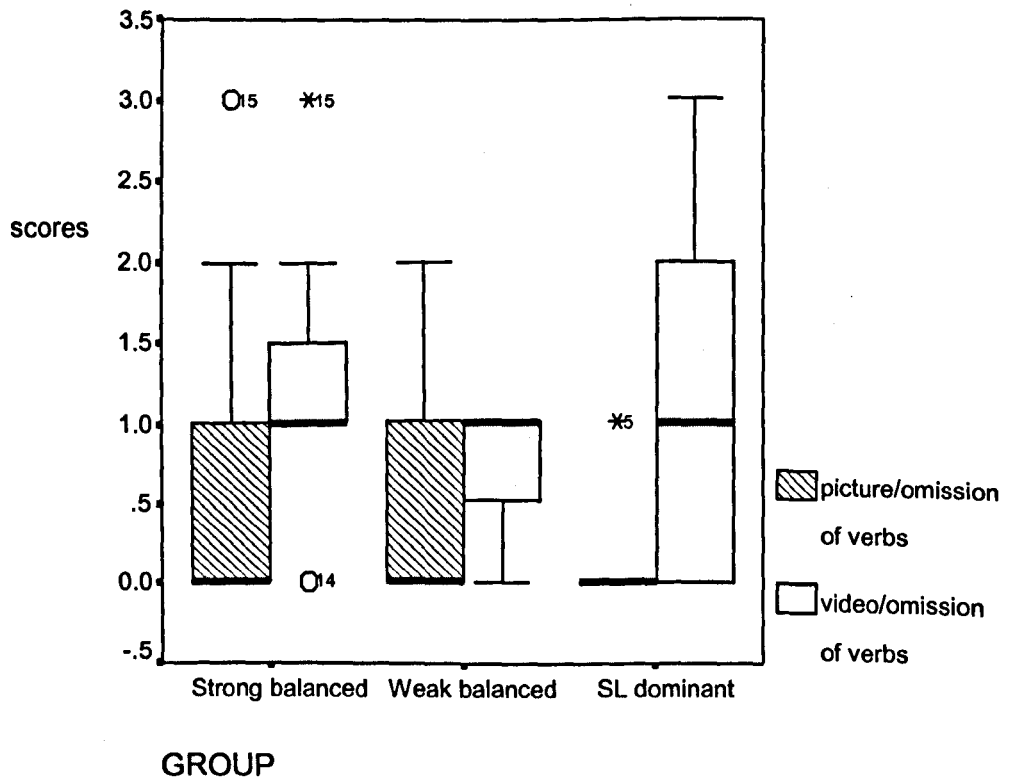
Figure 7-14: Omission of verbs

7.5 Summary of quantitative results

As far as the _group effect_ is concerned the general result was that the strong bilingual group scored significantly higher than the other groups, which by definition was expected. The aim was to see the placement of the three groups in relation to each other. At the information level the SL dominant group was the middle group in performance, being significantly different from neither the strong nor the weak bilingual group. In organisation and text characteristics, the SL dominant group shifted towards the weak bilingual group's performances. Only on a few measurements was it the middle group, such was the variety of relationships, T-U length and number of clauses/T-U. With respect to errors, there was no difference between any of the groups.

As far as the _material effect_ is concerned, our immediate interest is the effect of sign language on the groups'general performance. Sign language material improved the structure of the texts in terms of organisation (the 2nd and 4th level of tree diagrams) compared to the picture material. In relation to text characteristics, the source material caused no significant effect. A negative effect of sign language was found in the error analysis and this occurred in omission of grammatical words such as prepositions, and verbs of state/being/communication.

Finally, _the interaction effect between the groups and the material_ did not yield significant results, except in the affective type of information of the stories. In this case the strong balanced bilingual group performed significantly better on the video than on the picture task, the weak balanced group performed significantly better on the picture than on the video task and the SL dominant performed the same on both tasks.

8 ERROR ANALYSIS & QUALITATIVE RESULTS

In the following section we present a description of error patterns and linguistic styles found in the written stories and attempt to attribute these occurrences to known bilingual phenomena. The categorisation of errors via language groups does not mean that the errors of one group do not occur in the other. In fact most of the errors were similar in all groups –as implied also from the quantitative non-significant difference in error analysis. However the general impression from the stories, the cohesion and the style of language at discourse level used by each group were different and these findings will now be presented.

Each group's writing style will be illustrated with a case study example [26]. After the illustrative example there will be an account of the errors found in texts. The types of errors described here are similar to the ones in the error table with a few additions that were noticed during the reading of the stories (see Appendix 4, also extensive elaboration in Chapter 3.4.2, and 7.4). The types of errors most frequently found concern the following:

- **Grapheme and spelling errors (substance errors)**: omissions, overinclusions, and misselections. These types of errors are not usually a problem to deaf students' writing. They are interesting though because they have a two-fold nature: visual shape and sound representation. Some misselections have a visual nature, for example the letters ς & ξ and κ & χ look similar and they were confused. Other misselections involved letters such as β & φ, which sound similar and look the same on the lips. Depending therefore on which of the two types are more pervasive we can detect which processing – visual/orthographic or phonological- is underway.

- **Stress system**: in written Greek the words receive a mark on top of the vowel whose syllable is stressed during speech. Errors in the written stress system

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[26] All examples of written stories are presented as the original ones without corrected spelling, punctuation, stress, capitalisation etc. Also the changing of lines follows the changing of lines on the student's page. The only intervention in the examples given here is the elimination of self-corrections. This is to make the stories easier to read.

do not interfere with the understanding of meaning but they are interesting to describe because of their connection to speech perception.

- **Interlanguage errors** (see *Error analysis*, 3.4.2). In the following description of errors, the additional language –the sign language- manifests itself in various ways such as:

  a. *noun modification* expressed in various forms either as neologisms or in a concatenation manner that resemble sign language structures. In *neologisms* the student is making up a non-existent word –always a content one- to fill in vocabulary gaps. In *concatenation* the student chains two nouns together to make a new word. In sign language it is possible to modify a noun with another noun. In concatenation, in sign language there is a stem-sign for a superordinate class at the end of a modifying word. In the example below the stem is the sign for "person" and once combined with an appropriate sign it gives different meanings.

  E.g.:   SUGAR+PERSON = pastry-man = ζαχαροπλάστης,

  SNOW + PERSON = snow-man = χιονάνθρωπος.

  Many of the noun modifications found in narratives, had a visual implication.

  b. *verb modification* expressed as modifying tense and aspect. Both tense and aspect have been given periphrastically (i.e. externally like it occurs in sign language). For example *tense modification* is given modifying the verb "to be" along with other verbs. *Aspect modification* works in a similar manner by adding adverbials of manner such as "he looked again again" to give continuity.

  c. *noun-copy* or pronoun-copy and instances of phrase-copy, occurs in a similar way to "pronoun copy" or "question copy" in sign language. These structures are common in sign language and they serve purposes of emphases (Sutton Spence & Woll, 1999).

  d. *word flow/order* (expressed mainly as packed information & topic-comment). In *packed information* the writer attempts to provide the concurrent information of signing in a similarly packed way in writing dropping all conjoining words and putting together groups of verbs or groups of nouns in an unconnected way. The *topic-comment* word order is also an attempt of transferring sign language topic-comment structure.

e. _rhetorical questions_, are a way to put emphasis and draw attention to new information in sign language. They have also been described as a type of **topic-comment** structure (Sutton Spence & Woll, 1999).

f. _exact translation_ (vocabulary errors). Vocabulary errors are expressed by translating the equivalent sign, which does not fit the L2 context. Also, in this category, are placed all the structures that do not fit in the above c, d & e categories. They mostly concern one item, for example the word OK or "all fine" to finish the story.

- **Intralanguage errors** (see _Error analysis_, 3.4.2) In the present study intralanguage errors were:

  a. _sentence conjunction_ (expressed mainly as using subjunctive over coordination)

  b. _morphological errors_ expressed in a variety of structures the most prevailing being verb morphology, case marking and grammatical gender.

  c. _redundancy strategy_ where the L2 writer in an effort to make sure the message is passed on, resorts to techniques such as tautology or over marking reference.

  d. _generalisation strategy_. Over-use of a rule where it is not appropriate. Over-use of a certain strategy has the side effect of under-using others (i.e. overuse of noun reference and therefore under-use of ellipsis). Another expression of generalisation strategy is the _syntactic gravity_ (James, 1998): one structure affecting the structure next to it e.g. one can safely assume that, the case system of adjectives is similar to the nouns they are modifying.

  e. _compensation strategy_ (expressed mainly in word choice). When compensating for an unknown word the writer resorts to using another familiar word with a similar meaning.

- **Discourse errors**

  a. _perspective shift errors_ (expressed mainly as wrong person in verb construction, and blended reported speech) As far as person in verb is concerned, in many cases the writers favored 1st person and 2nd person in perspective where 3rd person should be used. Both these persons are the characters' perspective rather than the narrator's. As far as reported speech is concerned there is, in almost all tasks and groups, some minor

or major direct-indirect speech blending. This was partly because of the frequent 1st person verb use where a 3rd person was required as well as from missing verbs of thought or communication.

b. _Word choice_ (expressed as using mainly a verb whose perspective is not appropriate according to the context. Examples during error analysis will illustrate this point)

c. _absence of reference devices_ (expressed mainly as lack of anaphora)

d. _information errors_, expressed mainly as:

    1. Omission of important information.

    2. Misorder or unclear information.

    4. Confusion of referents (usually the dog and the frog)

It should be made clear that the majority of errors concerned _morphology_, which is only mentioned on a few occasions because of their overwhelming quantity. The researcher felt that morphological errors should be investigated in-depth and not simply described in a small section of a thesis. Finally, the categorisation of errors serves purely to provide a convenient means of presentation and it is possible that an error can occur in more than one category (i.e. be a interlanguage and a discourse error).

In summary this section attempts to classify, and explain the errors produced. The error analysis will begin with the strong balanced bilingual group then with the weak balanced bilingual and finally with the SL dominant bilingual group. First there will be the presentation of the case profile from each group and then the errors produced in all texts.

8.1.1 Strong balanced bilingual language profile

The strong bilingual group includes by definition the best performers, not only because they have good sign language skills to carry out successful translation tasks but they may also have good written Greek skills to produce a good written text. As far as the group's sign language skills are concerned these are described better by the criteria defined by sign language assessments (see 0). Specifically, the members of this group are more likely to be described as having "good" or "very good" sign language skills. They are therefore able to express themselves comfortably and skillfully through GSL and GSL may be considered either their preferred or even their mother tongue. Grammatically they may be able to perform correctly, noun and verb modifications, using space for grammatical purposes comfortably. They are likely to have a broad and sophisticated sign vocabulary and at the highest skills of language we could include the ability to use GSL creatively (i.e. for poetic, metaphoric or sophisticated humor purposes). The above are indirect assumptions derived from the assessors' ratings as already mentioned in 6.2.2. The members of this group are also assessed as having "good" or "very good" written language, which means that their grammatical skills in written Greek do not interfere with the comprehensibility of the text. Also they are likely to use elaborated constructions such as conditionals, subordination, rich vocabulary, etc. (see 6.1.2.2). This combination of skills in both languages creates a writing style, which is manifested in the written narratives of our study as follows:

Overall, they were the group which used most frequently and effectively the punctuation system, the accentual system and reference system. In fact despite errors at the grammatical level, they used cohesive devises appropriate to written language. The reference system was strikingly different between all groups, with the strong bilingual using the most effective one. So, despite the errors, they linked their sentences in a variety of ways such as: anaphora, time & location references, pronominal in interchange with nominal system in order to introduce, re-introduce and maintain the characters of the story properly, provision of grammatical variation and use of figures of speech, such as metaphor.

The language style will be illustrated with an example but Appendix 8, Section 18.1 shows that this linguistic style is common more or less among the members of this group.

Example of typical strong bilingual writing:

The participant chosen to illustrate strong bilingual writing was the only student who received the highest assessment grades: EVMOU had 4 in Greek Sign Language assessment and 4 in written Greek assessment from both assessors of the school. She is 18 years old and comes from a hearing family, which, according to the school counsellor is very supportive and positive towards her deafness. She is not only a good and methodical student but also a very bright one according to her teachers. She did not learn GSL in the family but was exposed to it quite early in school and her signing is admired by the deaf and hearing staff of the school.

THE FROG STORY (picture stimulus)

The kid with the dog you-all-see the frog.

He is sleeping with the dog next to him.

The frog climbs up the vase and leaves somewhere.

Afterwards they woke up, dress, he-opens the window

and called where is the frog.

They go to the wood for search.

The dog sees hive and afterward falls hive,

they run because hive they-followed the dog and

the child.

The boy is-afraid because he-sees owl.

Afterwards he climbs up a big stone and sees and

call afterwards suddenly the reindeer took from his head.

They-run and fell the boy with the dog, into the port.

Suddenly he-heard that could he be there the frog.

Looks that they-are here the frogs and one it took

his frog and they left.

▼

Ο Μικρός μαζι με το σκύλο βλέπέτε τον βάτραχο.

Αυτόςκοιμάται με το σκύλο δίπλα του.

Το βάτραχο ανεβαίνει το βάζο και φεύγει κάπου.

Μετα ξυπνήσαν, ντυνέμοι ανοίγει το παραθυρό

και φωνάξε που είναι το βάτραχο.

Πήγαινουν στο δάσο για ψάχνουν.

Ο σκύλος βλέπει κυψελη και μετά πέφτει κιψελη,

αυτοί τρέχουν γιατι κιψέλη ακολούθησαν ο σκύλος και

το παιδί.

Το παιδί φοβάται γιατί βλέπει κουκουβαγιά.

Μετά αυτός ανεβαίνει ένα μεγάλο πέτρα βλέπει και

φωνάξει μετά ξαφνικά ο τάρανδο πήρε απο το κεφάλι του.

Τρέχουν και έπεσε το παιδι μαζι με το σκύλο, στο λιμάνι.

Ξαφνικά άκουσε ότι μήπως είναι εκεί το βάτραχο.

Κοιτάζει ότι είναι εδώ τα βάτραχα και ένα το πηρε

δικό του βάτραχο και έφυγαν.

THE STRAWBERRY LADY (video stimulus)

The Lady went to the grocer-man to buy
the strawberries she paid and left.
She walked in the street, suddenly some boy is
strange his face like is witch. He followed
the girl and wants to take the strawberries.
Lady was running and came the bus
got in. He is sad because he wants
to eat but doesn't have.
Some other time again he saw a lady who has the strawberries
was running and followed but lady disappeared in the wood. But is
boy
disappointing because not is-found the strawberries. Some
day he saw in the wood there are strawberries, ate and
happy. The lady went to her house and gave

to all her family and they ate.

▼

Η Κυρία πήγε στο μαναβη για να αγόρασει

τις φρουλες πληρώσε και έφυγε.

Αυτή περπατήσε στο δρόμο, ξάφνικα κάποιος αγόρι είναι

παραξένο το προσώπο του σαν είναι μαγισσα. Αυτός ακολουθήσε

την κοπέλα και θέλει να πάρει τις φραουλες.

κυρια ετρέχε και ήρθε το λεωφορείο

μπήκε μεσα. Αυτός είναι στεναχωρισμένος γιατί θέλει

να φάει άλλα δεν έχει. Αλλη φορά πάλι αυτός είδε μια κυρία που έχει

τις φραουλες έτρεχε και ακολουθήσε, άλλα

κυρία εξαφανίστηκε μεσα στο δάσος. Όμως είναι αγορί

απογοητευτικός γιατί δεν βρίσκεται τις φραουλες. Καποια

μερά αυτός είδε στο δάσο είναι φραουλες., εφάγε και

ευτυχισμένος. Η κυρία πήγε στο σπίτι της και έδωσε

σε όλους οικογενεία της και έφαγαν.

Strong Balanced bilingual: comments on the writing profile

The strong bilingual person's texts despite the errors, are well understood. There is a variety of cohesive tactics to link sentences and events together:

a) Anaphora

e.g.   The kid with the dog you-see the frog. *He* is sleeping...

▼

Το παιδι και ο σκυλος βλεπεις το βατραχο. *Αυτος κοιμαται*...

b) Time & location relations:

e.g.   ...and leaves *somewhere. Afterwards* they woke up...

▼

...*και φευγει καπου. Μετα ξυπνήσαν*...

c) Interchanging nominal and pronominal words to reintroduce and maintain the characters:

e.g   *The Lady* went to the grocer... *She* walked in the street...

▼

Η Κυρια πήγε στο μαναβη... Αυτή περπάτησε στο δρόμο...

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d) Grammatical variation

  e.g Relative clauses:

  ...he saw the lady *who* has the strawberries

<p style="text-align:center">▼</p>

  ...αυτός είδε μια κυρια *που* εχει τις φράουλες.

  Subjunctives:

  He followed the girl and *wants to take* the strawberries

<p style="text-align:center">▼</p>

  Αυτός ακολούθησε την κοπέλα και *θέλει να πάρει* τις φράουλες

  Co-ordination of other type than "and":

  He is sad because he wants to eat *but* doesn't have

<p style="text-align:center">▼</p>

  Αυτός είναι στεναχωρισμένος γιατι θέλει να φάει *αλλά* δεν έχει

  Metaphor:

  ...is strange his face like is a witch

<p style="text-align:center">▼</p>

  ...είναι παραξένο το προσώπο του σαν είναι μαγισσα

From the above examples (most of them are taken from the video story) and from the results of text analysis, it seems that the type of material had an effect with video being more facilitative than the pictures. Although the picture story is of approximately the same length it has not produced more grammatical complexity (in fact there were attempts of subordination but they were all ungrammatical) and it has not produced much insight into the characters in the way the video has (i.e. the psychological development of the strange man being "sad" and then "disappointed" and eventually "happy" in comparison to the dry description of the boy and the dog). The two stories have a common contextualised introduction.

It is obvious that in general the writer knows how a text needs to be constructed and she has a good grasp of Greek language. It seems that the video task has managed to express this knowledge of L2 in a more effective way.

<p style="text-align:center">184</p>

8.1.1.1   Types of errors in strong bilingual video texts

When spelling errors occur, which is relatively rarely, these are usually omissions or overinclusions of a grapheme. The nature of the errors seems of an irregular nature (i.e. the graphemes are not similar to each other visually or phonetically) and most of them were vowels.

The omissions were:

Φρούλες x = φράουλες √EVMOU

Κλαδά x = κλαδιά √GEOTSA

Βατραχία x = βατραχίνα √PELPAN

and the overinclusions were:

στεναχωρισμένος x = στεναχωριμένος √EVMOU

βατραχιακο x = βατραχάκο √PELPAN

There was one misselection of "ε" & "α":

Κατελαβε x = κατάλαβε √ANTSIN

The **stress system** is well used. Only one student did not use it at all (GEOSOM) and one (ANTSIN) had a tendency to move the tones further down the stressed syllable (i.e. the text "sounds" like French).

In the category of **interlanguage errors** there are some examples of **aspect modification**:

The boy said thank-you *pa* to take the dog told him to leave.

▼

Το αγόρι είπε ευχ'αριστο *πα* να πάρει το σκυλάκι του είπε να φυγουν.

PELPAN

There is a non-sense word "pa" in between the verbs. This "word" typically accompanies, as mouthing, the sign equivalent of "finished" or "done" which is indicative of a past perfective event. For example: "EAT-*PA*" means "I just ate".

Another example of aspect modification, is the following:

The man did not find her *again again*

▼

Ο αντράς δεν την βρήκε, *ξανα-ξανα*

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ANTSIN

Another type of modification is *noun modification* such as:

(1) Trees strawberries

▼

Δέντρα φραουλες

TASDIM

In the example above (example 1) the "stem" concept is "tree" as it is superordinate and the modifying word is "strawberries". The intended meaning in English would be "strawberry bush". In Greek however you cannot have tree & strawberry as both have the status of nouns. In a similar way come the following examples:

(2) Κουτι φράουλες

▼

Box strawberries

PANPRISK

(3) Καλάθι φράουλες

▼

Basket strawberries

STATA

Sign language influence also manifests its presence in the word order and word flow. One way of doing this is *packed information*. The example that follows attempts to describe the scene from the Frog Story where the boy looks into a hole from where a mouse jumps out and scares him:

Outside yard he-was-looking-for and thinks that the soil is inside to see to-take-out, to-scare that there-was a mouse

▼

Εξω αυλη εψαχνε και νομιζει οτι το χωμα ειναι μεσα να δει βγαλει, τρομαξει οτι υπηρχε ενα ποντικο.

GEOSOM

This is a structure of unconnected verbs put together. It is true that in sign most of these things happen together: the signer pretends to be the boy who looks into a hole. While looking at the hole, the signer's hand forms the shape of "a mouse". So while

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still looking, the signer's-hand-mouse jumps out and the signer's-face-boy is scared. The writer attempts to provide the packed information of signing in a similarly packed way in writing, dropping all conjoining words.

Another sign language influence which manifest itself in the word order of written Greek is similar to the *topic-comment structure*:

"...and thinks that the soil is inside (i.e. the frog)..."

▼

"... *και νομίζει οτι το χωμα ειναι μεσα*..."

meaning that : "...he thinks that it's in the soil that the frog is ..." = "... και νομίζει οτι είναι στο χώμα εκεί που βρίσκεται ο βάτραχος...". Here, the proper Greek sentence would be:

"... and he thinks that it (i.e. the frog) is in the soil..."

▼

"... και νομίζει οτι είναι (ο βάτραχος) μέσα στο χώμα..."

Another example of topic-comment word order is:

... he fell from the balcony *result was fine*.

▼

... επεσε από το μπαλκονι *αποτελεσμα ήταν καλα*

GEOTSA

which is the equivalent of "...he fell from the balcony but as for the result, he was fine".

In another case, which is common in other tasks and groups as well, we see a complete reversed order of the subject and object in the sentence. This creates a confusing and frequently a comic effect:

The tree climbs-up the old-lady

▼

To δεντρο ανεβαίνει την γιαγιά

PANPRISK

Probably here the student tried to follow the SVO most common word order in Greek but she highlighted that "it is the tree that she climbs". To end with another such construction more familiar with sign word order:

A boy age is eight

▼

Ενα αγόρι χρονών είναι οκτώ

GEOTSA

All the above examples are not clear-cut "topic-comment" examples but a mixture of topic-comment and assumptions about how a proper Greek sentence should be written.

Finally we have *exact translation* from the video:

"... and they go to his place OK"

▼

"... και πάνε στο σπίτι του OK

GEOTSA

Here the signer on the video finishes the story with the ASL sign of "OK" to mean "alright" = "εντάξει"

Wrong *word translation* is another type of sign language transfer. In the following examples the word "tree" = "δέντρο" and "wood" = "δάσος" are mixed:

The boy and little dog with the frog they-believe that they-are there *the wood fell* and it-is inside

▼

Το αγορί και σκυλάκι με το βατραχο πιστεύουν οτι υπαρχουν εκει *το δάσο επέσε* και υπάρχει μέσα

PELPAN

"... perhaps outside it was they will go out to *the trees*"

▼

"...μήπως έξω ήταν θα πανε έξω *στα δέντρα*."

GEOTSA

The first writer uses the word "wood" to refer to the tree trunk, which has fallen down. The second writer uses the word "trees" to refer to the wood. Clearly we have a direct sign language translation where the two words "trees" and "wood" are similar signs.

In the category of *intralanguage errors* we have a common error among the students of all groups which is the use of the **subjunctive conjunction** "to" = "*vα*" *in a coordinate manner*. For example:

> The boy woke-up *to* went the window *to* be-seeing outside yard
>
> ▼
>
> Το αγορι ξυπνησε *vα πηγε το παραθυρο vα βλεπει εξω αυλη*

<div align="right">GEOSOM</div>

For possible explanations see discussion chapter.

The examples that follow all fell into the **redundancy category**. There is a marked **double negation** in the phrase:

> He was looking his room *neither doesn't* he have him!!!
>
> ▼
>
> Αυτος εψαχνε τον δωματιο του *ουτε δεν τον εχει*!!!

<div align="right">GEOSOM</div>

There is a redundancy of referents by repeating nouns and not making use of the pronoun system:

> The boy saw the dog and the boy was-saved the dog
>
> ▼
>
> το αγόρι είδε ο σκύλος & το αγόρι σώθηκε σκύλος

<div align="right">GEOTSA</div>

In the **discourse errors** there is a **perspective shift** error: *person in verb and direct-indirect speech*. As far as the first is concerned we have a few examples:

> A man you-ate and you-were-satisfied / The children we-ate strawberries and we-were satisfied.
>
> ▼
>
> Ενας άνδρας *έφαγες και ικανοποιθήκες* / Τα παιδιά *φάγαμε* φράουλες και *ικανοποιηθήκαμε*

<div align="right">PANPRISK</div>

> ...they-were-left their mouth open because *I-escaped* and he-left from the house

<div align="center">189</div>

▼

...και εμειναν ανοιχτο στο στομα τους γιατι προσφυγα και εφύγε από το σπίτι.

<div align="right">GEOTSA</div>

...suddenly he-saw the mouse and *I-saw* the tree and there was a bee-hive

▼

...ξαφνίκα είδε το ποντικί και ψαχνεί και *είδα* το δέντρο, εκει υπάρχει μία κυψελή

<div align="right">PELPAN</div>

As far as the direct-indirect speech blend is concerned we have the following:

Dog you-come to he-see the frog

▼

σκύλος έλα να δει τον βατραχο.

<div align="center">GEOTSA</div>

The student has not decided whether she wants to have a direct speech as in: "Dog, you-come over here to see the frog" where both verbs should be in the 2nd person singular or an indirect quotation as in "...the boy told the dog to come over and see the frog" where both verbs should be in the 3rd person. The same type of error occurs in the following example:

That he-found the frog, you-come to the dog to has the frog

▼

Οτι βρηκε τον βατραχο, ελα τον σκυλο να εχει τον βατραχο

<div align="right">GEOSOM</div>

An erroneous word choice is also indicative of perspective shift error.

Outside yard he-was-looking-for and thinks that the soil is inside to see *to-take-out*, to-scare that there-was a mouse

▼

Εξω αυλη εψαχνε και νομιζει οτι το χωμα ειναι μεσα να δει *βγαλει, τρομαξει οτι υπηρχε ενα ποντικο.*

<div align="right">GEOSOM</div>

In the example above the writer uses the verb: "to-take-out" instead of the verb "to come out". These verbs are similar in Greek. Their only difference is the perspective

<div align="center">190</div>

of the action. Here the verb used is semantically the wrong one for the context (the mouse was taken out x = το ποντίκι βγάλει x). The mouse came out on its own (the mouse got out √= το ποντίκι βγήκεν√).

8.1.1.2 Types of errors in strong bilingual picture texts

At the **spelling/ grapheme** level there seem to be slightly more errors in the picture task than the video. Also in the picture task there were more misselections compared to other types. Some **misselections** have a visual nature:

Φωνάξει x = φωναζειν√EVMOU and

ζαφνικά x = ξαφνικά √GEOTSA

βατράκι x = βατράχι √ANTSIN

Other misselections involved strictly the vowel, "α" which was turned into either "o" or "ε" in:

ανοβηκε = ανέβηκε ANTSIN

απα = από ANTSIN

The fact that the same person produces these errors could mean that they are idiosyncratic in nature. The only speech related error concerned the misselection of the graphemes "φ" & "β". (i.e. φ=f & β=v):

φοφήθηκε x = φοβήθηκε √ANTSIN

These two letters do not look alike but they do sound alike and share the same lip-pattern. While writing, therefore she must be using speech strategies.

Also there were **omissions** of graphemes of an irregular nature. Two out of the three grapheme-omissions were vowels:

Βάτραχα x = βατράχια √EVMOU

γυλνο x = γυάλινο √STATA

πασμένο x = σπασμένο √ANTSIN

Eventually there are two grapheme **overinclusions** of an irregular nature. The overinclusions unlike the omissions are all on consonants:

Ελαφρι x = ελάφι √ANTSIN

Κλέψτει x =κλέψει √GEOTSA

As a last note on grapheme errors, as seen from the above description, most of them were produced by the same student (ANTSIN) whose written stories were among the best in the sample of stories. The explanation could be that the picture task activates more the phonological elaboration of individual word spelling instead of a visual one (the video has not produced the same amount of errors in general or/ and in the same student).

The *stress system* works same way as in the video stimuli.

In *interlanguage errors* in this task we encounter some *noun modifications*. There are two examples:

Pine tree[27] = πευκο δέντρο ANTSIN

Circular bees = κυκλική μελισσών PANPRISK

The last example (PANPRISK) is partly a neologism. The intended meaning which is "beehive" is made up from the "circular + bees" and it represents a visual description of a beehive due to its rounded shape. All inflections used are perfect which means that the writer knows how the language works but in this particular instance she did not know the vocabulary.

Another more powerful neologism, which serves the particular context in the absence of the Greek vocabulary, is the word:

"κρεμαστρία" ANTSIN

which means "something which hangs". The root of the word comes from "to hang" and it has an ending for a feminine noun. The word is used instead of "beehive" = "κυψέλη" and has a strong visual description. It could also be a sign-language-based creation. Nevertheless it is designed to fit the morphology of Greek language and can actually pass as a Greek word.

In *aspect modification* we have three instances. Two of them from the same writer:

he called again again

▼

φώναξε ξανά ξανά

---

[27] The translation in English does not reveal the error because in English like in sign language, one can modify a noun with another noun.

ANTSIN

The dog *continually* played tree

▼

Ο σκύλος συνέχεια παίξει δέντρο

ANTSIN

The boy *is sleeping*[28]

▼

Το αγόρι είναι κοιμάται

PANPRISK

The example, which follows, is not a grammatical structure but an influence on punctuation from *exact sign language* transfer:

...where can he be*?*

▼

...που να πήγε αράγε*?*

STATA

In written Greek the question mark is ";". But in GSL, signing the English question mark forms the questions. This is a clear transfer from GSL questions and it is also interesting that it happens in the picture task, which means that GSL was involved in the sentence structure.

Another case of error found in this task is the *"noun-copy"*:

The little-dog jumped suddenly from the balcony and broke the vase which he-had on his head *little-dog*.

▼

Το σκυλάκι πηδήξε αποτόμα από το μπαλκόνι και έσπασε το βάζο που είχε στο κεφάλι του σκυλάκι

STATA

As for *topic-comment* structures, we have the following:

... but the vase was-coming-out the frog

---

[28] In English this is correct but in Greek it is ungrammatical.

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▼

... αλλά το βάζο έβγαινε τον βάτραχο

PANPRISK

The vase is inside the frog

▼

Το βάζο είναι μέσα στον βατραχο.

TASDIM

In both instances the writers intend to describe the scene where the frog is inside the vase and comes out of it. Both writers chose to highlight the vase first and comment that the frog was inside or came out of it.

In *intralanguage errors* we see again the use of subjunctive conjunction "to" = "να" in a coordinate function:

That she-took the strawberries to go to her house.

▼

Οτι πηρε τις φραουλες να πηγε στο σπιτι της.

GEOSOM

When we woke up to saw where is a frog.

▼

Οταν ξυπνησαμε να είδαμε που είναι ένα βατραχο.

TASDIM

The following error occurs in the morphology of the adjective "many" in the phrase "many tramps" = "πολλες αλητες". This is a case of *syntactic gravity* error:

Many tramps want to eat

▼

Πολλες αλητες θέλουν να φαγε

GEOTSA

The ending of the two words is the same (-ες). It is correct for the noun but incorrect for the adjective.

In the following error we have an assumption about the **grammatical gender** of the adjective. The noun "the boy" is grammatically neutral so it should be the adjective "angry". But the adjective here is masculine which is wrong:

> The boy angry takes it in his lap
>
> ▼
>
> το αγόρι θυμωμένος το πάρει αγκαλία

<div align="center">PANPRISK</div>

However the real gender of the boy being male can excuse the preference of the masculine gender among the three possibilities (masculine, neutral & feminine) for referring to the boy.

In **word choice** eventually we have an example of **compensation strategy**:

> They-run and fell the boy with the dog, into the *port.*
>
> ▼
>
> Τρέχουν και έπεσε το παιδι μαζι με το σκύλο, στο *λιμάνι.*

<div align="center">EVMOU</div>

The writer here is obviously lacking the proper vocabulary, which would be "lake" = "λίμνη" but she is compensating by using a familiar word with similar meaning which also is visually similar.

In **discourse errors** and specifically in the **perspective shift** we have instances of direct and indirect speech blending and 1st person verbs where 3rd should have been. As far as the first is concerned:

> … and puzzled where has he gone
>
> ▼
>
> … και απορημένος που να πήγε αράγε.

<div align="center">STATA</div>

> When we-woke up to saw where is the frog
>
> ▼
>
> Οταν ξυπνησαμε να είδαμε που είναι ένα βατραχο.

<div align="center">TASDIM</div>

> … he heard that could the frog be there

<div align="center">195</div>

▼

... άκουσε οτι μήπως είναι εκεί το βάτραχο

EVMOU

As far as the person in verb is concerned, here is a writer who has been quite consistent with his 1st person use. His whole text actually is interesting because his whole perspective shift between narrator and characters takes place in a quite "signed" way:

> The boy and the dog we-see a frog. The vase is in the frog. Afterwards the boy and the dog we-slept on the bed. The frog comes out of the vase and left. When we-woke up to we-saw where is a frog. We-look in the room. We-shout "frog". The boy fell a deer. A deer is angry to run with the boy with him. The boy fell in the lake. We-found to we-took a frog. Greets the other frog.

▼

> Το αγορι κι ο σκυλος βλέπουμε ένα βατραχο. Το βάζο είναι μέσα στον βατραχο. Μετα το αγορι κι ο σκυλος κοιμηθηκαμε στο κρεβατι. Ο βατράχος βγαίνει από το βάζο κι εφυγε. Οταν ξυπνησαμε να είδαμε που είναι ένα βατραχο. ψαχνουμε στο δωματιο. Φωνάξουμε, «βατραχο». Το αγορι έπεσε ένα ελαφι. Ένα ελαφι θυμωσει να τρέχει με το αγορι μαζί του. Το αγορι έπεσε στην λιμνούλα. Βρήκαμε να πηραμε ένα βατραχο. χαιρεταει το αλλο βατράχο.

TASDIM

The vast majority of the verbs show that the writer-narrator plays the role of the boy and the dog. The verbs that are in 1st person are only the ones that refer to the boy and the dog showing a perspective of priority. He knows 3rd person but he only uses it for other participants in the story such as the deer and the frog.

Other similar examples of wrong perspective in verbs are:

> The kid with the dog you-see the frog.

▼

> Ο Μικρός μαζι με το σκύλο βλέπέτε τον βάτραχο

EVMOU

> A boy sat and you-see vase and inside the frog, next the dog

▼

Ενα αγορι κάθησε και βλέπεις βάζο και μέσα τον βάτραχο

PANPRISK

Eventually there are a few examples of wrong word choice according to the perspective between the verbs: "to come out" & "to take out". The writer chose "to come out" instead of "to take out":

After a few minutes the little boy was-coming-out his clothes

▼

Μετά απο λιγά λεπτά το αγοράκι εβγαίνε τα ρούχα του

ANTSIN

There was also a similar situation between the verbs: "βλέπω"= to see & understand, realise, and "κοιτάζω"= to look at something.

He looks that the frogs are here

▼

Κοιτάζει ότι είναι εδώ τα βάτραχα

EVMOU

Here the appropriate is "to see" = "βλέπω" as he realised that the frogs were there. Also deixis is proximate instead of distant (i.e. "here" instead of "there"). The choice could be because of a fusion of description and direct speech "Look, the frogs are here". This would explain the choice of proximate deixis "here" as well as the verb "to look at" = "κοιτάζω" which is more deictic and serves better in this context.

8.1.2 Weak balanced bilingual language profile

The weak balanced group is by definition the group with poor skills in both languages. Therefore it is the group that can reveal what effect the lack of a first language can have on literacy activities such as writing.

As for the GSL profile, this is the group whose participants were assessed as having "poor" to just "adequate" skills. This means that they may be either struggling or have barely adequate GSL knowledge to express themselves in this language,

probably making use of periphrastic means, examples and symbols to assist meaning. Space may be inconsistently used for grammatical purposes, such as inflection of verbs and nouns or role-shifting. Vocabulary may vary but may be not regarded generally as sophisticated. GSL may have a Greek "feel" either in word order or a lot of mouthing while signing. Members of this group may also favor sign supported Greek as opposed to GSL. These skills are derived indirectly from the ratings of the assessors and the criteria defined in 0. These GSL skills interacted with equally "poor" and/or "adequate" written Greek skills which were defined as: consistent use of erroneous morphology and syntax to the point of interfering with the comprehension of the written text; restricted vocabulary and general tendency to produce simple sentences preferably in a coordinated manner (see 6.1.2.2). The interaction of the above skills in the two languages was manifested in a writing style, which is described below.

This group it is apparent from the overall analysis of the texts that they faced the most difficulties with the task of writing in general. Two students from the initial sample did not cooperate at all, another did not want to cooperate in the video task and most of the stories were returned unfinished. In addition they wrote very short narratives. As far as narrative style is concerned there is a sense of unconnected flow. Their writing resembles a collection of Greek sentences as if taken from grammar books. There is a strict sense of word order, which makes the narrative very rigid. Also the overwhelming majority of reference techniques is *noun repetition*. This overmarked noun reference can be found in the other two groups especially in SL dominant but not to the extent that is used here (see Appendix 8, Section 18.2 for the weak bilingual group written narratives).

Apart from the reference style, the general elaboration of stories and language was very poor. Experimentation with language was minimal and they probably chose to write sentences, which they know to be correct in other contexts but which do not really serve their purpose in the flow of a story. In the verb construction system there was little subordination and tense variation. Pronouns were scarcely used. Also there was an extensive use of definite articles as a means for character or setting introduction without any previous reference to them. The texts therefore were heavily contextualised.

Example of typical weak bilingual writing:

ARILIA is an 18 year old boy. He is deaf from birth. The school counsellor described his family as not having a positive attitude towards deafness and Sign Language. In the language assessments he scored 2,5 and 2 in GSL, and 2 and 1 in written Greek from his school assessors.

THE FROG STORY *(picture stimulus)*

The child sees from the frog.

The dog hold vase.

The frog is in the vase.

The child and the dog to-sleep on his bed.

The frog climbs-on the vase.

Two windows has small

the child and dog sees the vase because leaves the frog.

The child wake-up to put-on the clothes.

The dog is in the vase.

The child calls.

The dog has inside vase because hurts his head.

The dog fell down.

The child sees from the dog.

The child hugs the dog.

The vase brakes down.

▼

Το παιδι βλεπει απο το βατράχο.

Ο σκυλος κρατάει βαζο.

Ο βατράχος ειναι μέσα στο βαζο.

Το παίδι και ο σκύλος κοιματουν στο κρέβατι του.

Ο βαταχος ανεβαίνει στο βαζο.

Δυο παραθυρα εχει μικρο

το παιδι και σκυλο βλεπει στο βαζο γιατι φευγει τον βατράχο.

Το παιδι ξυπνήσει να φοραει τα ρουχα.

Ο σκυλος ειναι μέσα στο βαζο.

Το παιδι φωναζει.

Ο *σκυλος εχει μεσα βαζο γιατι ποναει κεφαλι του.*

Ο σκυλος επεσε κατω.

Το παίδι βλεπει απο τον σκυλος.

Το παίδι αγκαλιαζει τον σκυλο.

Το βαζο σπαει κατω.

THE STRAWBERRY LADY (video stimulus)

The mother will go to the town.

The mother buy the strawberries.

The woman asks 1 kilo the strawberries.

The bad is watching the woman.

The bad catch the woman because eats the strawberries.

The woman climbs up the tree.

The bad looks for the woman because have tree.

The bad goes to the tree because eats the strawberries?

The woman goes to his house.

The family eat the strawberries.

▼

Η μήτερα θα παει στην πόλη

Η μητερα αγορασαει τα φρουαλα.

Η γυναικα ρωταει 1 κιλο το φρουαλα.

Ο κακο παρακολοθει την γυναικα.

Ο κακο πιασει την γυναικα γιατι τρωει τα φρουαλα.

Η γυναικα ανεβαινει στο δεντρο.

Ο κακο ψαχνει την γυναίκα γιατι εχει δεντρο.

Ο κακο παει στο δεντρο γιατι τρωει τα φρουάλα.

Η γυναικα παει στο σπιτι του.

Οι οικογενεια τρωνούμε τα φρουάλα.

Weak balanced bilingual: comments on the writing profile

ARILIA's texts have very little grammatical elaboration and provide basic meaning in a simple way. There is a complete absence of cohesive devices and the repetition of nouns is dominant particularly for maintaining characters where anaphora is usually used:

e.g: *The mother* will go to town. *The mother* buy the strawberries.

▼

Η μητέρα θα πάει στην πόλη. *Η μητέρα* αγορασάει τα φρουάλα.

The sentence collection is obvious as they are arranged in a neat way one at the bottom of the other in both picture and video task. A noun always begins the sentence, a verb follows and the sentence ends with information, which comes uninflected, and usually unmodified. Nevertheless, the text is not confusing as there is little –if not at all- experimentation with the language.

Contextualisation of the stories is obvious as both introduce their characters with definite determiners and there is no other information about the setting (i.e. time, location):

e.g   *The* child sees from the frog. *The* dog holds vase.

▼

Το παιδί βλέπει απο τον βάτραχο. *Ο* σκυλος κρατάει βαξο.

The simplicity of the sentences is very apparent and modification of any kind is absent (adjectives, adverbs, other modifying phrases) Nevertheless there is some subordination:

e.g.   The bad catch the woman because eats the strawberries

▼

Ο κακό πιάσει τη γυναικα γιατι τρωει τα φρουαλα.

The dog has inside vase because hurts his head

▼

Ο βατραχος εχει μεσα βαζο γιατι πoναει κεφαλι του

although all of the subordinate clauses are of "because of…" type. It suggests that the writer is aware that he has to explain to the reader some of the protagonists' motivations and feelings.

8.1.2.1   Types of errors in weak bilingual video texts

As mentioned in the profile and as seen from all the texts of the group (Appendix 8, Section 18.2) the stories are written using very simple language almost automatic. Most of the problems in the stories were of a discourse and information level.

A brief note on the *grapheme/ spelling* type of errors: these were basically *omissions*:

Παντευτικαν x = παντρεύτηκαν √STAVAP

Αγπάει x = αγαπάει √VASTAM

Παρακολοθεί x = παρακολουθει √ARILIA

One *misselection* was:

Αναβηκε x = ανέβηκε √STAVAP

The *stress system* used was irregular as some used it and others did not.

Interlanguage errors: There was one case of *aspect modification*:

The dog *is saw* the dogs

▼

Ο σκυλος *είναι ειδε* σκύλακια

FOTFOT

Here the writer uses the present tense of the verb "to be" with the verb "to see" in the past. It appears that the writer wanted to express that the dog just that moment saw the little frogs (note that he has confused his referents).

Of the errors that appear to be *intralanguage* we find two instances: grammatical gender and conjunction misuse. The *grammatical gender* (morphology error) refers to the child being grammatically neutral but the writer has inflected the indefinite article, which introduces it as masculine.

A-MASC. Boy-NEU. 7 about years old

▼

Ενας παιδι 7 περιπου χρονων

FOTFOT

The gender is grammatically wrong but semantically correct.

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The **conjunction** error refers to the use of "to " = "*να*":

> The girl looks *to* follow behind the witch. Afterwards she was running *to* climb up the tree.

<div align="center">▼</div>

> Το κοριτσι κοιταζει *να* παρακολουθει πίσω τον μάγο. Μετά έτρεχε *να* ανέβασε πανω το δέντρο

<div align="right">PANTLAZ</div>

Most of the problems in weak balanced group's stories had to do with the way the information was presented (*discourse level*). The most apparent being the absence of reference devices -other than noun repetition- in almost all stories. Frequently, there was:

a. Omission of important information (see the narratives of STAVAP and FOTFOT for example, appendix 8, section 18.2)

b. Misorder/unclear information.

> *Unclear information*:
>
> The child gave food

<div align="center">▼</div>

> Το παιδι εδωσε φαγητο

<div align="center">FOTFOT</div>

> The child gave a food to the dog.

<div align="center">▼</div>

> Το παίδι έδωσε ένα φαγητο στον σκύλο.

<div align="center">STAVAP</div>

> An old-man prepared the strawberries. Afterwards the shops were selling.

<div align="center">▼</div>

> Ενας γέρος έφτιαξε τις φραουλές. Μετά πουλουσαν τα μαγάζια.

<div align="right">PANTLAZ</div>

> The bad is looking for the woman because has tree.

<div align="center">▼</div>

Ο κακο ψαχνει την γυναίκα γιατι εχει δεντρο

ARILIA

Misorder of information :

The dog fell from the window is fine. In the morning the child I-woke up and I went to the tree.

▼

ο σκυλος επεσε απο παραθυρο είναι καλα Το πρωι το παιδι ξυπνησα και πηγα τοδεντρο

FOTFOT

c. confusion of referents

The dog is saw little dogs

▼

Ο σκυλος είναι ειδε σκύλακια

FOTFOT

The child saw a dog. The child gave a food to the dog.

▼

Το παίδι είδε ένα σκυλο. Το παίδι έδωσε ένα φαγητο στον σκύλο.

STAVAP

Perspective shift errors (favoring 1st person in verb) are the following:

In the morning the child *I-woke-up* and *I-went* the tree

▼

Το πρωι το παιδι *ξυπνησα και πηγα τοδεντρο*

FOTFOT

In the morning the child *I-woke-up* and *I-went* and *I-saw* and the dog he-was-lost.

▼

Το πρωί το παιδί ξυπνησα και πήγα και είδα και χαθηκε τον σκύλο

STAVAP

In both examples it is the boy –and no other referent- who is producing such a perspective error. In the last example (STAVAP) this is even more obvious as the three verbs referring to the boy are in 1ˢᵗ person and the fourth verb referring to the missing frog, is correctly put in the 3ʳᵈ person. Therefore it is not an error due to not knowing the rule.

8.1.2.2 Types of errors in weak bilingual picture texts

Grapheme and spelling errors in this task were of omission, misselection and misorder types. The **omissions** were mostly vowels:

> Αγπάει x = αγ<u>ο</u>πάει √VASTAM

> Σκαρφαλεί x = σκαρφαλ<u>ώ</u>νει √EVGEO

The **misselections** were also vowels except the last:

> Κρεβάτ<u>ο</u> x = κρεβάτ<u>ι</u> √EVGEO

> Φωνί<u>ζ</u>ει x = φων<u>ά</u>ζει √EVGEO

> Φωνα<u>ξ</u>ει x = φωνα<u>ζ</u>ει √VASTAM

One case of **misorder** was also recorded:

> Κεραβτι x = κρεβάτι √VASTAM

The **stress system** had the same characteristics as in the video task.

In **interlanguage errors** we find **noun modification**:

> The lady woman x = Η κυρία γυναικα√STAVAP.

Another possibility is that this example is a case of redundancy via repeating many alternatives in an effort to make sure the meaning is transferred.

In **aspect modification** there was the use of the verb "to be" in combination with another verb:

> The grandma *is went* is-shopping strawberries. The grandma *is walks*.

> ▼

> Η γιαγιά είναι πηγε ψωνίζει φραουλες. Η γιαγία είναι περπατα.

> FOTFOT

The example that follows is *packed information:*

Fell-down is-afraid the child sees the dog went, is afraid the bee.

▼

Επεσε φοβαται το παιδί βλέπει οσκυλος πήγε, φοβαται η μελισσα

EVGEO

In *intralanguage errors* we encounter again the subordinate conjunction "to" = "*να*" in coordination.

The child to-wake-up to put-on the clothes

▼

Το παιδι ξυπνήσει να φοραει τα ρουχα.

ARILIA

The child is-waking-up to put-on the clothes

▼

Το παιδί ξυπνάει να φοράει τα ρούχα

EVGEO

The boy is-sitting to see the frog

▼

Το αγόρι καθέται να βλέπει τον βατραχό

PANTLAZ

A compensation for a *word choice* seems to come from assumptions about the target language, is the following:

The child is sleeping on the bed _and_ the dog

▼

Το παιδί κοιμάται στο κεράβτι _και_ τον σκύλο.

VASTAM

Here the writer wants to reveal the semantic category of "conjoining" which would be expressed better with the word "with". The connector "and" from the very fact that it works as a connector, reveals the intention to mean "with". Another justification for this choice is that he uses a function word for a function word ("and" for "with") instead of a content word such as "together".

Under *discourse errors* two similar cases will be presented where the logical or chronological flow of events are reversed and it is not clear to the researcher if they are sign language induced errors. Nevertheless they affect the discourse:

> The dog has inside vase because hurts his head

> ▼

> Ο σκυλος εχει μεσα βαζο γιατι πονάει κεφαλι του.

<div align="right">ARILIA</div>

This is a usual construct of reversed cause-effect found also in strong balanced group's errors. The intended meaning is: "The dog's head hurts because it is inside the vase" or "The dog is inside the vase that's why his head hurts". The word "because" in the sentence is used more broadly to describe reason & consequence. It is obvious the writer tries to make the most of a limited vocabulary.

The second example also suffers from reversed cause-effect information:

> The child was-scared the dog fell

> ▼

> Το παιδί τρομαξε ο σκυλος επεσε

<div align="right">EVGEO</div>

The story shows that the child was scared because the dog fell down. Therefore either the subordinate conjunction "because" is missing or the order of events is reversed.

An error of perspective is a *word choice* error:

> The dog *gets-into* the head from the bottle

> ▼

> Ο σκύλος *μπαίνει* το κεφάλι απο το μπουκάλι

<div align="right">VASTAM</div>

Here we have again the choice of the wrong verb according to the perspective of the context. This word choice (i.e. "to get into" Vs "to put into") has also been found in the strong bilingual group in both tasks.

Last discourse error is the *perspective shift error*. In this task we found the following cases:

"... a somebody *You-Follow* the lady"

▼

"...ένας καποιος *Ακολουθείς* την κυρία"

STAVAP

The dog is-climbing from the bottle to *you-see* the frog

▼

Ο σκύλος ανέβει από το μπουκάλι *να δεις* τον βατράχο.

VASTAM

We also find one case of blended reported speech:

The boy opened the window, called you-come the frog

▼

Το αγόρι άνοιξε έξω το παραθυρό, φώναξε έλα τον βατραχό.

PANTLAZ

8.1.3 Sign Language dominant bilingual language profile

The SL dominant bilingual group has good sign language skills. Written Greek though is poor, so by definition the written narratives were not expected to be at a high level. The sign language skills of this group are similar to the strong balanced bilingual group in that the participants were rated as having "good" and "very good" GSL skills as defined in 0 (skilful expression in GSL; probably the preferred language; space properly used for grammatical constructions; wide sign vocabulary, and creative GSL use). The written Greek skills of this group were rated as "poor" and "adequate" meaning use of erroneous morphology interfering with comprehension of meaning; simple constructions such as coordination and restricted vocabulary (see 6.1.2.2). As the general production of language interacts with their skills in both languages, the group adopts a unique writing style described below.

In this group there is a different style of narration from both previous groups although a few narratives resemble slightly the weak balanced bilingual group (see Appendix 8, Section 18.3). The resemblance is restricted to reference constructions

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(i.e. overmarked noun repetition and lack of pronouns) and the contextualised introduction of characters and setting using definite determiners. On the other hand there are common characteristics with a few of the narratives produced by the strong bilingual group such as long and unsegmented sentences.

Apart from that, there is a unique style adopted by this group: packed information. The text looks confusing and overwhelming as if verbs and nouns are thrown in randomly. Of all the linguistic constructions used, the following are in general the ones that contribute to the specific writing style of the SL dominant group:

a) *long sentences and propositions with unclear boundaries:* Although this can be found to a lesser degree in the strong bilingual group, the effect is greater here. Some episodes are described "in one breath" as a reader of the stories commented (usually the long sentences occur in the action of the story).

b) *simultaneous/concurrent narration:* this is probably the most characteristic part of the narration. Clusters of nouns and more frequently clusters of verbs make the narration "packed".

Despite the confusion, a closer look at the stories reveals an effort to modify verbs periphrastically, to create subordination, to animate narration etc. The example which follows illustrates most of the cases mentioned above but more variety can be found in the rest of the stories in Appendix 8, Section 18.3.

Example of typical sign language dominant writing:

The student chosen to represent the SL dominant group was VALKONT because he was the only person of the sample who had another deaf member in his immediate family. VALKONT is an 18 year old boy that comes from a family where there is an older deaf brother, via whom he was exposed to GSL. This means VALKONT had earlier exposure to Sign Language than the other students. Indeed, his assessors rated him high in Sign Language proficiency (3 and 3,5 scores). He is considered an intelligent student with a relatively good performance in written Greek (score: 3 from the school assessors). Nevertheless, his narratives were very poorly rated by the external assessor, which may indicate that his teachers may be affected from his overall language performance and personality (his score from the external assessor was only 1,5). His texts are as follows:

THE STRAWBERRY LADY *(pictures stimulus)*

The grandma went the shop to bought
strawberries.
The grandma went there-were tramps behind to
followed to grab
the grandma is scared in-hurry to was-running
inside bus saved,
went to when
arrive to get-off. Again tramps
followed the grandma. The tramps
happy ate strawberries. The
grandma went to house after
we-ate strawberries family.

▼

Η γιαγια πηγε τον μαγαζι να αγορασε
φραουλες.
Η γιαγια πηγε ηταν πισω αλητες να
ακολουθηκε να αρπαξε
την γιαγια φοβεται βιαστημα να τρεχε
μεσα λεωφορειο σωθει,
πηγε να οταν
φτασε να καταθηκε. Παλι αλητες
ακολουθηκε την γιαγια. Οι αλητες
χαρουμενοι εφαγε φραουλες. Η
γιαγια πηγε στο σπιτι μετα
εφαγαμε φραουλες οικογενεια.

THE FROG STORY *(video stimulus)*

At night boy and together dog he-slept was night the frog escape.
In the morning boy and together dog

he-wakes up after will-be-going to see

inside box the frog was

doesn't have here box the frog,

the boy and the dog sadness

must to he-goes looks for

the frog. The boy and the frog

he-went to look-for

the tree doesn't have nothing the frog

another again looks-for was

the dog jump hive, the dog is scared

to run fast with boy was fell to the river,

boy and together dog to speak

and there make cave and

goes to see was finds

the frog, bring a small frog,

the boy and together dog he-goes to house.

▼

Το βραδυ, αγόρι και μαζι σκυλος κοιμηθει ηταν νυχτα τον βατραχο ξεφυγει.

Τον πρωϊ αγορι και μαζι σκυλος

ξυπναει μετα θα πηγαινει να δει

μεσα κουτι τον βατραχο ηταν

δεν εχει εδω κουτι τον βατραχο,

Το αγορι και ο σκυλος ανησυχια

πρεπει να πηγαινει, ψαχνει τον

βατραχο. Το αγορι και ο σκυλος

πηγαινει να ψαχνει

τον δεντρο δεν εχει κανενα τον βατραχο,

αλλο παλι ψαχνει ηταν

ο σκυλος πηδει κὺψελη, σκυλος φοβεται

να τρεχει γοργα μαζι αγορι ηταν

επεσει τον ποταμι,

αγορι και μαζι σκυλος μιλησει

εκει κανει σπηλια και

πηγαινει να δει ηταν βρισκει

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τον βατραχο, φερει ενα μικρο βατραχο,

το αγορι και μαζι σκυλος πηγαινει στο σπιτι

Sign Language dominant: comments on the writing profile

The Sign Language dominant person's narratives are very different in style and language use from the previous ones. The narration is, unsegmented, fused, and at times incomprehensible. Most verbs appear in basic forms in relation to number:

e.g.   The boy and the frog *he-went to* look-for...

▼

Το αγορι και ο σκυλος *πηγαινει να ψαχνει*...

and inflected wrongly in relation to aspect/tense/mood-:

e.g.   At night boy and together dog *he-sleep* was night the frog *escape*

▼

Το *βραδυ αγορι και μαζι σκυλος κοιμηθει ηταν νυχτα τον βατραχο ξεφυγει.*

It appears that tense is modified periphrastically by using the verb "to be" in past tense form and adding the base form of the main verb:

e.g.   "...*ηταν ο σκυλος πηδει κυψελη*..." "was the dog jump hive"

"...*ηταν επεσει τον ποταμι*..." "was fell to the river"

"...*ηταν βρισκει τον βατραχο*..." "was finds the frog"

This is found only in the video task and it resembles time marking in sign language (signs such as BEFORE or AFTER). Also in narrative from video another error pattern resembling a sign language construction that of pronoun copy (or rather topic-copy) appears before and after the predicate:

e.g.   after will-be-going to see inside *box the frog* was doesn't have here *box the frog,*

▼

μετα θα πηγαινει να δει μεσα κουτι τον βατραχο ηταν δεν εχει εδω κουτι τον βατραχο

Nouns and verbs appear in series:

e.g.:   The grandma went there-were tramps behind *to followed to grab* the grandma *is scared* in-hurry to *was-running* inside bus *saved, went to when arrive to get-off.*

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▼

Η γιαγια πηγε ηταν πισω αλητες *να ακολουθηκε να αρπαξε τη γιαγια φοβεται βιαστημα να τρεχε μεσα λεωφορειο σωθει πηγε να οταν φτασε να καταθηκε.*

The boy and *the dog sadness* must to he-goes looks for the frog

▼

Το αγορι και οσκυλος ανησυχια πρεπει να πηγαινει ψαχνει το βατραχο.

There are however some differences between the picture and video texts. The picture task has produced more "Greek-like" or "written-like" text: there is punctuation and sentences that have clearer beginnings and ends and are shorter. However, it seems the task posed more problems to the writer as he wrote only half the amount of text he produced from the video.

The video task has produced a narrative, the "sentences" of which coincide with the introduction, the events in the house and the events outside the house. This makes a narrative of four distinct sentences, two of them very long. The text at first appears more confusing than the picture text because it is longer and has more detail. But apart from being more elaborated in events it has more cohesive ties such as:

e.g. "At night...", "In the morning...", "After...", "Another again..." = "some other time",

verb or noun modification such as:

e.g. "to run *fast*", "a *small* frog".

All these of course are not clearly identifiable, since there is little use of punctuation and unclear sentence boundaries. These features are completely absent in the picture story where coherence resembles that found in the text produced by the weak balanced bilingual subject.

8.1.3.1 Types of errors in SL dominant video texts

On the *spelling/ grapheme* level we find blend, omissions and overinclusions. *Blend* there is only one case:

$\epsilon\underline{\pi\phi}\tau\acute{\alpha}$ x = $\epsilon\underline{\phi}\tau\alpha/\epsilon\underline{\pi}\tau\alpha$ √IRIPONT

Both options individually are correct but not both together. Possibly the writer has seen these both in print and lipread and opted for a redundancy strategy (i.e. put both options just in case).

In *omission* also there was only one case of a whole syllable missing:

$\pi\eta\gamma o v\nu$ x = $\pi\eta\gamma\underline{\alpha\iota}\nu o v\nu$ √GOPLA

Most of the errors here were *overinclusions* of irregular nature:

$\chi\underline{\rho}\omega\mu\alpha$ x = $\chi\omega\mu\alpha$ √

$\underline{\epsilon}\tau\rho\epsilon\chi\epsilon\iota$ x = $\tau\rho\epsilon\chi\epsilon\iota$ √GIOPAP

$\chi\alpha\vartheta\eta\kappa\epsilon\underline{\iota}$ x = $\chi\alpha\vartheta\eta\kappa\epsilon$ √IRIPONT

As for the *stress system* the writers usually do not put the stress on the words. The writer most consistent with intonation (IRIPONT) is far from using it correctly and has the tendency, familiar from previous groups, to move the stressed syllable down the word.

In *interlanguage errors* we have *tense modification* in the manner of using the verb "to be" along with other verbs:

Inside box the frog <u>was</u> doesn't have here box the frog

▼

$\mu\epsilon\sigma\alpha$ $\kappa o v\tau\iota$ $\tau o\nu$ $\beta\alpha\tau\rho\alpha\chi o$ $\underline{\eta\tau\alpha\nu}$ $\delta\epsilon\nu$ $\epsilon\chi\epsilon\iota$ $\epsilon\delta\omega$ $\kappa o v\tau\iota$ $\tau o\nu$ $\beta\alpha\tau\rho\alpha\chi o$

VALKONT

To run fast with boy <u>was</u> fell the river

▼

$\nu\alpha$ $\tau\rho\epsilon\chi\epsilon\iota$ $\gamma o\rho\gamma\alpha$ $\mu\alpha\zeta\iota$ $\alpha\gamma o\rho\iota$ $\underline{\eta\tau\alpha\nu}$ $\epsilon\pi\epsilon\sigma\epsilon\iota$ $\tau o\nu$ $\pi o\tau\alpha\mu\iota$

VALKONT

We also find an *aspect modification* using the content word "continually" to indicate duration:

... still *continually* we-looked-for ...

▼

... $\alpha\kappa\acute{o}\mu\alpha$ $\sigma\upsilon\nu\epsilon\chi\epsilon\acute{\iota}\alpha$ $\psi\alpha\xi o v\mu\epsilon$ ...

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IRIPONT

In the *topic-comment structure* we find:

The mother had the children 7

▼

Η μητερα ειχε τα παιδια 7

GIOPAP

where the topic (the children) are mentioned first and then the comment (that there are seven of them) is following. Also the following example:

THE WINDOW HE-FELL

▼

ΤΟ ΠΑΡΥΘΥΜΙ ΕΠΕΣΕΙ

GOPLAST

meaning "it was from the window that he-fell".

The following is a *rhetorical question*:

A THE CHILD HOW OLD IS HE? 7 HE IS.

▼

ΕΝΑ ΤΟ ΠΑΙΔΙ. ΠΟΣΟ ΧΡΟΝΩΝ ΕΙΝΑ? 7 ΕΙΝΑΙ

GOPLAST

On a similar tone but not as explicitly put, comes the following example:

... still continually we-looked-for I-saw *what* is tree...

▼

... ακόμα συνεχεία ψαξουμε ειδα π ειναι δεντρο

IRIPONT

The word π = "what" is an interrogative particle and the sentence reminds of "we looked for-a-long-time and –what did I see?- is a tree".

Eventually topic-comment structure has also appeared in a different from all the above forms as in:

Child and dog together will go look-for THEME the dog.

▼

Παιδι και σκυλο μαζι θα πεια εψαχνε ΘΕΜΑ ο σκυλο

NATLOUTZ

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In the above the word "theme" *explicitly* introduces the topic: *It's the dog* that they go to look for. The fact that it was written in capitals may indicate that it is conceived or it is a signal to the reader to be considered as an extra-textual cue. Also it may indicate knowledge that this is not a Greek way to say things so it is explicitly differentiated from the rest of the text.

Another sign language induced error is the *noun copy* at the end of the sentence (in the example below it is actually a phrase copy):

Inside *box the frog* was does not have here *box the frog*.

▼

μεσα κουπ τον βατραχο ητον δεν εχει εδω κουπ τον βατραχο.

VALKONT

A *direct translation* of vocabulary is the ending of the Frog Story as found also in the same task in bilingual group (see 8.1.1.1):

THEY-GO TO HIS HOUSE. ALL-FINE.

▼

ΠΗΓΟΥΝ ΣΤΟ ΣΠΙΤΙ ΤΟΥ. ΕΝΤΑΞΕΙ.

GOPALST

An *intralanguage error* is the *redundancy strategy*.

A the boy

▼

ΕΝΑ ΤΟ ΠΑΙΔΙ

GOPLAST

Here we have an overstatement of reference to the boy: both possible ways (i.e. definite & indefinite articles) are used to introduce the character. As this sentence is the beginning of the story, the proper choice would be the indefinite "a boy". The writer has encountered both ways and suspects that introducing a character is not the same as maintaining the character. This is apparent because she only demonstrates this structure at the beginning of the story whereas she goes on maintaining the character by using the correct definite article "the".

Compensation for *word choice* has also been found in weak bilingual picture section (see 8.1.2.2) and in this case we have the following intsances:

At night, boy *and together* dog he-sleep.

▼

Το βραδυ, αγόρι *και μαζι σκυλος κοιμηθει*

VALKONT

Child and dog *together* will go look-for THEME the dog.

▼

Παιδι *και σκυλο μαζι* θα πεια εψαχνε ΘΕΜΑ ο σκυλο

NATLOUTZ

The proper word in the context should have been "with" and just as the weak bilingual group, we detect a preference to content words as function ones.

In intralanguage error again is the ***conjunction misuse*** of "to" for "and" in verb phrases:

He-runs *to* he-climbs the tree

▼

Τρεχει *να ανεβαινει το δεντρο*

GIOURLOG

Dog is-scared *to* he-runs fast together boy

▼

σκυλος φοβεται να τρεχει γοργα μαζι αγορι

VALKONT

She-walks *to* she-thinks that the children you-liked them.

▼

Περπατοει *να στεφτεται οτι τα παιδια σας αρεσαν.*

GIOPAP

Eventually there are cases of wrong ***grammatical gender***, error found also in the weak bilingual video texts (see 8.1.2.1):

The-MASCULINE Boy-NEUTRAL was seven years old

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▼

Ο Αγορι ήταν επφτά χρόνων

IRIPONT

Most of the problems in SL dominant's stories (like in weak bilingual group) occurred on the *discourse level*. Unlike the weak bilinguals' tendency towards unconnected text via insufficient reference system, the SL dominant group problem was of a different nature: an apparent confusion. The texts seemed fluent in an unknown to the reader system. It is possible that the fluency is due to the undisturbed thought in sign language, which breaks down when expressed in Greek. This confusion is very vivid in *packed information* which occurs in almost all the stories of the group:

Tries catches starts to annoy from behind, someone, He is bad.

▼

προσπαθει πιανει αρχιζει να ενοχλει απο πισω, καποιος, Αυτο ειναι κακος"

GIOPAP

The boy the strawberries the girl to comeback walks the pavement will know the man the shop.

▼

Το Αγορι τις φραουλες το κοριτσι να επιστροφη περπατει το πεζοδρομο θα εγνωριει τον ανθρωπο στο μαγαζι

GIOURLOG

The dog *is leaves disappears*

▼

Ο σκυλο είναι φυγει χαθυλε

NATLOUTZ

THEY-RUN THEY-SEE THEY MARRY. THEY-BORN THE FOUR OR FIVE LITTLE-DOGS

▼

ΤΡΕΧΟΥΝ ΕΙΔΟΥΝ ΠΑΝΤΡΕΥΤΟΥΝ. ΓΕΝΝΗΘΟΥΝ ΟΙ ΤΕΣΣΕΡΑ Η ΠΕΝΤΕ ΣΚΥΛΑΚΙΑ

GIOPLAST

There are also discourse errors such as: contextualised setting, tense inconsistency, incomplete sentences, etc. On the whole though the discourse errors of the SL dominant group (omission of information & confusion of referents) were not made on the same scale as the weak bilingual group. There was missing information **(1)**, one unclear information **(2)** and referent confusion **(2)** & **(3)**:

(1) The girl sees to watch behind the wizard. She-runs to climb the tree.

▼

Το κοριτσι βλεπει να παρακολουθει πισω τον μαγο. Τρεχει να ανεβαινει το *δεντρο*

GIOURLOG

(2) A child found a dog. *A dogSpenh**

▼

Ενα παιδι βρηκε ο σκυλο. *Ενα σκυλοΣπενη*.

NATLOUTZ

(* word equally incomprehensible in Greek)

(3) AT NIGHT *THE DOG LEFT*

▼

ΤΟ ΒΡΑΔΥ, *ΣΚΥΛΟ ΕΦΕΥΓΕ*

GOPLAST

It must be mentioned here that despite the similarities with the weak bilingual group, the SL dominant group made a better effort as far as reference constructions and sentence variety are concerned. An example of such effort is better described in GIOPAP's video story (see Appendix 8, Section 18.3). This is a text, which despite its grammatical errors and unfinished sentences, displays a good stylistic (dialogues, adverbial use) and referential (pronoun use, reference via verbs & nouns) variety.

In *perspective shift errors* there are several stories displaying the 1st & 2nd person Vs the narrator's 3rd person and the blending of reported speech occurs in almost all stories:

The bus closed to-the door and *I-cannot* to he-get

▼

Το λεωφορειο κλειστο στο πορτο και δεν μπορω να πιανει

GIOPAP

Sorry that I-left from the house and the frog I-told him you will take a small frog he I-told me I will take frog I-told him YES. THE DOG I-told him you will take frog he-tells him YES, TO GO home.

▼

Συγνώμη που εφυγα απο το σπιτι και ο βατραχος του *ειπα* θα *παρεις* ένα μικρο βατραχο Αυτος *μου ειπα Θα παρω βατραχο του ειπα* ΝΑΙ. Ο ΣΚΥΛΟΣ *του ειπα* θα *παρεις* βατραχο του λεει ΝΑΙ, ΝΑ ΠΑΜΕ Στο σπιτι.

IRIPONT

The writer of the above example is constantly confusing the perspectives of the narrator and the characters especially when they are having dialogues. For example the interaction among the boy, the dog and the frog above is almost impossible to understand who talks to whom.

The-SINGULAR children-PLURAL *I-saw* the dog

▼

το παιδια ειδα ο σκυλο

NATLOUTZ

In the above phrase every single word has a morphological error: plurality of articles, person in verb and decline of article & noun to demonstrate the object of the sentence.

8.1.3.2 Types of errors in SL dominant picture texts

On the *spelling/ grapheme* level we have the following occurrences:

Misselections:

Πηδή*ξει* x = πηδήξειν√GIOURLOG

Φοβ*έ*ται x = φοβάται√

Ακολούθη*κε* x = ακολούθη*σε*ν√VALKONT

Φοβα<u>Λ</u>α x = φοβά<u>ται</u>√NATLOUTZ

Χολασε = χ<u>α</u>λ<u>ασ</u>ε

Μ<u>ι</u>κρια x = μ<u>ακ</u>ρια √

Πόρτ<u>ο</u> x = πόρτ<u>α</u>√GIOPAP

Except for the first error, which is visually induced, all the other graphemes seem to be of an irregular nature occurring though more in vowels than consonants.

Overinclusions:

Χ<u>ρ</u>ώμα x = χώμα√GIOPAP

Εφυγ<u>ει</u> x = έφυγε√GOPLAST

The first overinclusion is meaningful in the sense that the erroneous word still exists in the Greek vocabulary.

Omissions:

Μηκες x = μ<u>π</u>ήκες√GIOPAP

Κομμάται x = κο<u>ι</u>μάται√GIOURLOG

Misorder:

Π<u>ε</u>ια x = πάει√NATLOUTZ

Stress in the stories of this task is entirely absent.

In *interlanguage errors* we encounter a *noun modification*. Here the modification takes place in a compound word comprised from the two nouns:

Vaseglass = βαζογυαλο GIOPAP

A *rhetorical question* structure appears as:

What is he-doing? The boy sits to watch the frog

▼

Τι κάνει; Το αγορι καθεται να βλεπει τον βατραχο

GIOURLOG

In the *intralanguage errors* is the subjunctive *conjunction* in place of coordination:

The boy sits *to sees* the frog

▼

Το αγορι καθεται να βλεπει τον βατραχο

GIOURLOG

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The following *redundancy* strategy (found again in the video task from the same student) is used again as an introductory clause to the story:

A THE LADY. SHE-WILL-GO TO THE FRUITS

▼

ΜΙΑ Η ΚΥΡΙΑ. ΘΑ ΠΑΕΙ ΣΤΑ ΦΡΟΥΤΑ

GOPLAST

Compensation for *word choice* in the exact way found in the strong bilingual picture task:

...you-fell the *port*...

▼

...επεσατε το λιμανι...

GIOPAP

Where the word "port" compensates for the word "pond" or "lake".

In *discourse errors* in the picture task the most distinctive feature (i.e. that of packed information) seems to be absent. Except for VALKONT's picture story (see 8.1.3) the other stories lacked such sentences but did not lack the confusion due to problems in morphology and reference. Stories resemble the weak bilingual style. There are cases of missing information (1), and unclear information (2) but there is no referent confusion:

(1) Missing:

The little-dog you-followed from the bees

- *

you-fell the port to you-heard for the frog

▼

Το σκυλακι ακολουθηκατε απο τα μελισσα.

-*

επεσατε το λιμανι να ακουστικατε για το βατραχο.

GIOPAP

(* planned to have dialogue)

here he missed the scene with the dear throwing him off the cliff and into the river.

HE-IS VERY THIRSTY. THE LADY GAVE HIM THE STRAWBERRIES.

▼

ΔΙΨΑΕΙ ΠΟΛΥ. Η ΚΥΡΙΑ ΤΟΝ ΕΔΩΣΕ ΤΙΣ ΦΡΑΟΥΛΕΣ.

GOPLAST

He has missed all the forest hunting plus that the information of the lady giving him the strawberries is not valid.

Again tramps he-followed the grandma. The tramps happy to he-ate strawberries.

▼

Παλι αλητες ακολουθηκε την γιαγια. Οι αλητες χαρουμενοι να εφαγε φραουλες.

VALKONT

He has missed also the forest hunting.

(2) Unclear:

And tries to *you-???* Secretly he-looks at me

▼

Και προσπαθει να συχναζατε, κρυφα με κοιταζει

GIOPAP

He-was-looking-*for to ???* the frog.

▼

Εψαχνε να αναγκα τον βατραχο

GIOURLOG

Also the whole text of NATLOUTZ is incomprehensible. Her video text was bad but not as much as the picture.

Lastly in the discourse errors we find **perspective shift** errors:

The boy and dog *you-were-looking*-at a vase

▼

Το αγορι και σκυλι *κοιταξατε* ενα βαξο.

GIOPAP

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I-am-following grandma she-will go Home To

▼

Ακολουθω γιαγια θα πεια Σπτι Στο

NATLOUTZ

The grandma went home afterwards *we-ate* strawberries family

▼

Η γιαγια πηγε στο σπτι μετα εφαγαμε φραουλες οικογενεια.

VALKONT

Again we do not have that many reported speech blends in this task so the perspective errors are only manifested via 1st & 2nd person errors in verbs.

8.2 Summary of qualitative results

Descriptions of the errors of the different groups, the different material as well as the behaviour of the groups with the material were given in a qualitative interpretive way in the past chapter. The summary of the qualitative analysis will be presented here with figures.

Figure 8-1, Figure 8-2 & Figure 8-3 show the errors each group committed in the video and picture task.

VIDEO   PICTURE

Word order
Word choice
Morphology
Topic-comment
Conjunction misuse
Perspective shift
Aspect modification
Noun modification
Direct translation

Packed
information
Redundancy

Noun copy
Compensation
strategy

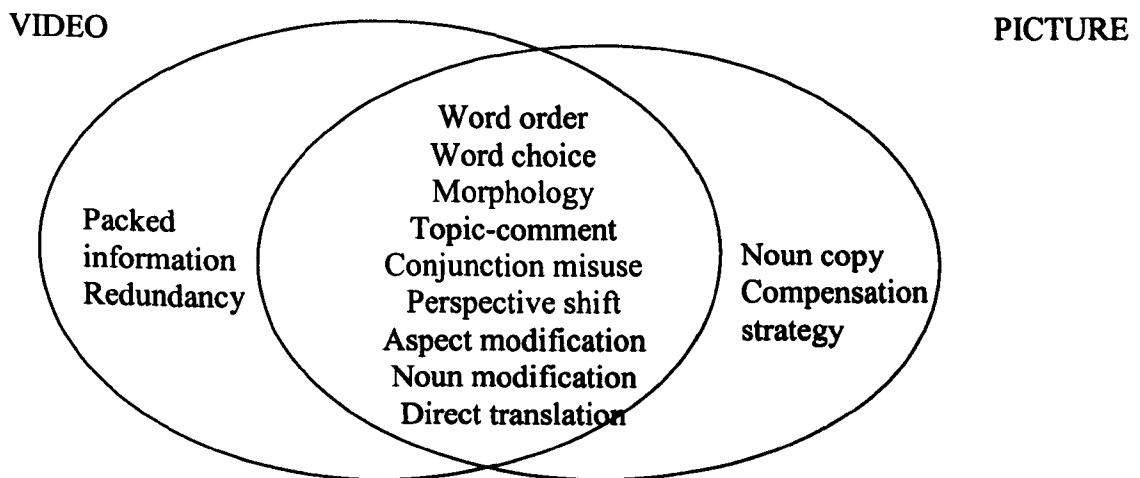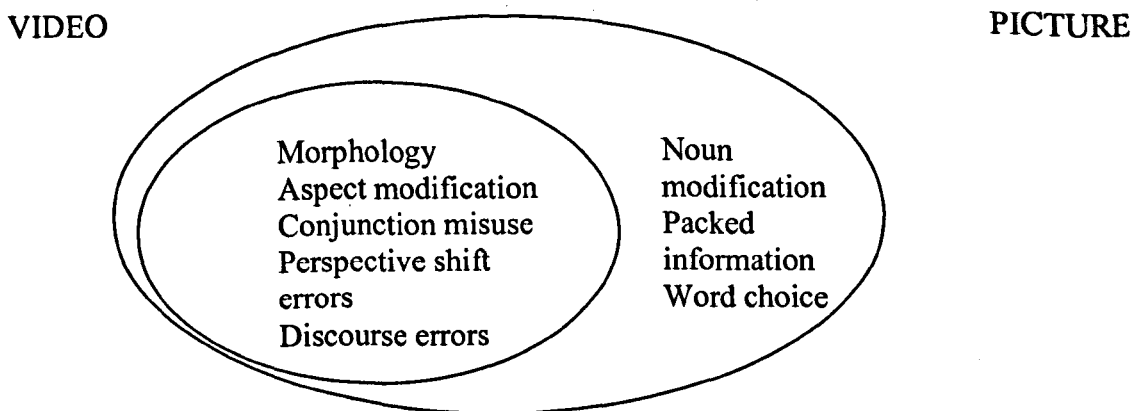**Figure 8-1: Strong bilingual group's errors in video and picture task**

Figure 8-2: Weak bilingual group's errors in video and picture task
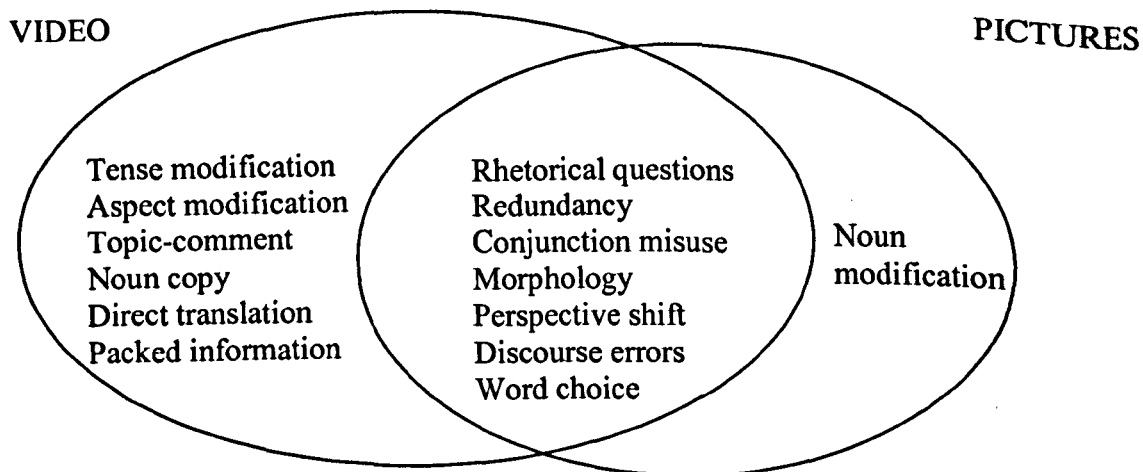

Figure 8-3: Sign language dominant group's errors in video and picture task

The analysis revealed that there were *global patterns of errors*, which were common to all groups and all tasks (marked in blue fonts on the diagrams). These were:

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a) Errors of *morphology* the gravity of which varied with the group. In the analysis, only a few morphological errors, mainly gender errors, were presented. Morphological errors in verbs –apart from the person in verb– were not accounted due to their big quantities and apparent random nature.

b) Errors of *perspective*, the most pervasive being confusing the characters' perspective with the narrator's via the wrong person in verb constructions and blending of direct and indirect speech.

c) Errors of *conjunction misuse* where the "to" = "*να*" is used as "and" = "*και*".

Figure 8-4 shows the errors that occurred in each task irrespective of groups. The overwhelming majority of the patterns are common to both tasks, which means that the tasks did not differ in language processing. There is only one pattern specific to the video task, which is *tense modification*. Also analysis of spelling errors was in accordance with the fact that deaf writers are generally good at spelling. It seems though that the video task produced more omissions and overinclusions of graphemes and the picture produced more misselections.

VIDEO   PICTURE

Tense modification

Topic-comment
Noun copy
Direct translation
Word order
Word choice
Aspect modification
Noun modification
Discourse errors
Rhetorical questions
Redundancy
Packed information
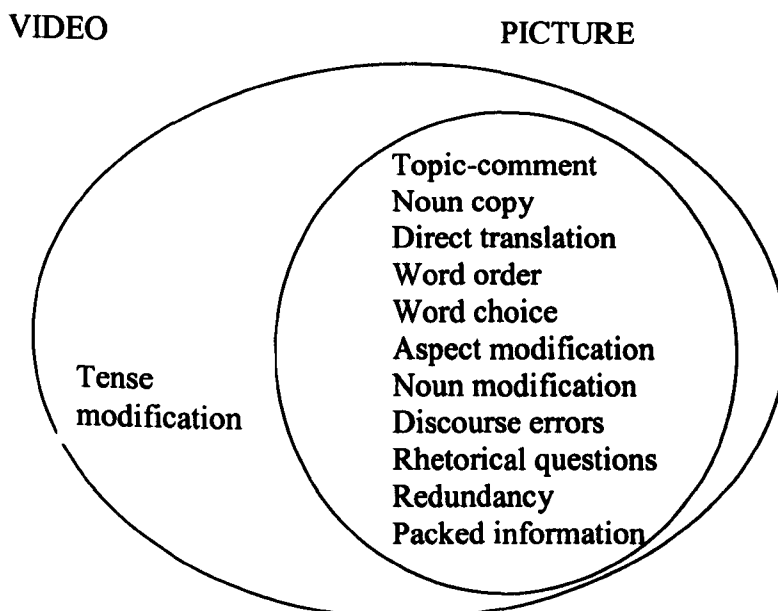
Figure 8-4: Patterns of errors elicited from the video and picture material

Lastly the patterns of errors produced from each group irrelevant of task are shown in Figure 8-5. The common patterns among the groups show again that the SL dominant group is the middle group in the development of deaf bilingual writing. Most of the patterns used from the strong balanced and the SL dominant group are the same. The weak bilingual group did not produce such a variety of patterns and most of them coincided with the SL dominant group but not with the strong bilingual.

Figure 8-5: Patterns of errors elicited from the video and picture writing task
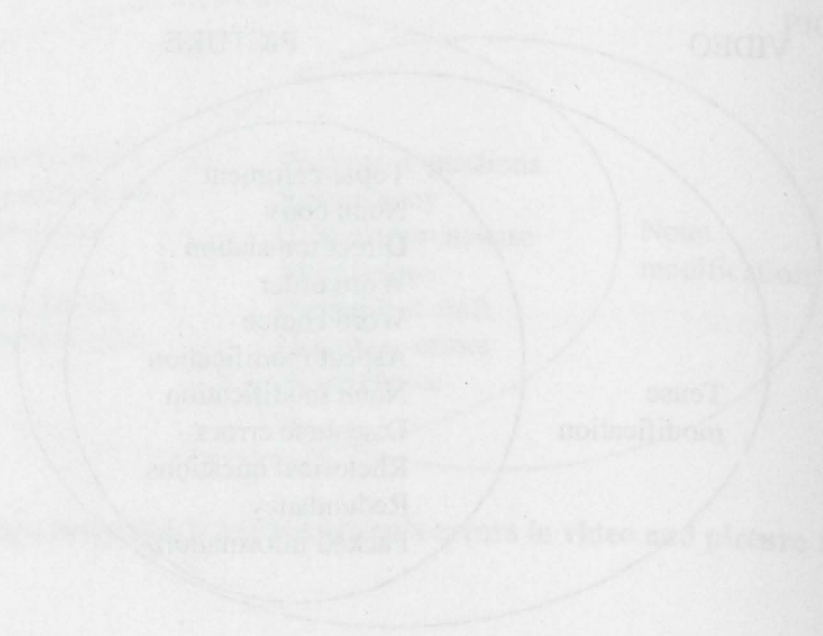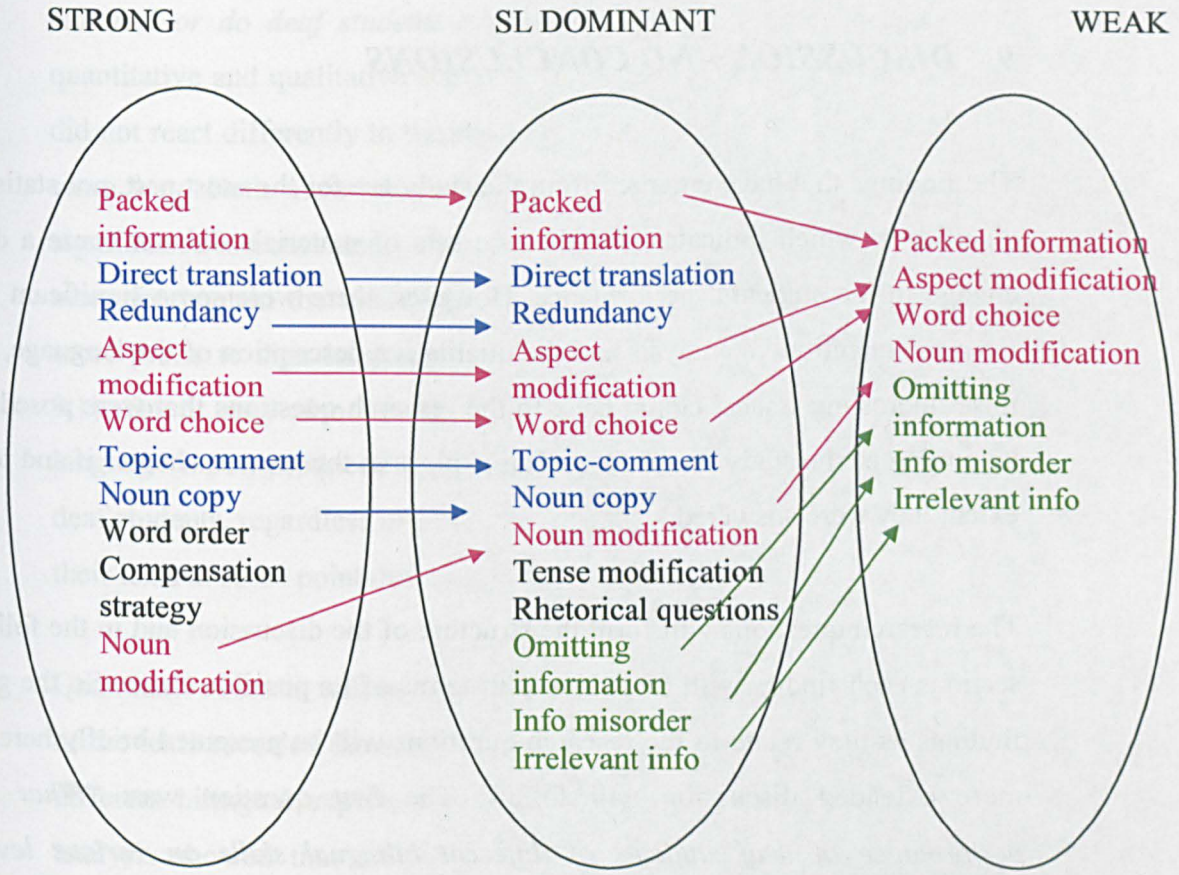
Figure 8-5: Patterns of errors produced from each group excluding the global errors.

The red arrows show the patterns of errors used from all groups. The blue arrows show those that are common only to the strong bilingual and SL dominant group and the green arrows show those that are common to the SL dominant and weak group. The strong and SL dominant are using many of the same techniques therefore they have common ways of processing information. The SL dominant though is using a smaller but substantial number of common processing strategies with the weak bilingual group (i.e. information errors such as omission, misorder and confusion of information). Quantitative results are therefore supported from qualitative analysis that indeed the SL group is a middle transitional group.

9   DISCUSSION AND CONCLUSIONS

The findings that have emerged from the study are for the most part, not statistically significant, which indicates that the two sets of materials did not cause a distinct change in the students' performance. However, there were some significant results from the quantitative analysis and the qualitative description of the language, which raise interesting issues. Going back to the research questions that were posed in the beginning of the study (see 4.5) we can explore in the present chapter if and to what extent they were answered.

The research questions will form the structure of the discussion and in the following sections each finding will be analysed in terms of its possible cause. So the general findings as they relate to the research questions will be presented briefly here and a more extended discussion will follow. The first question was: "*What is the performance of deaf students of different bilingual skills on various levels of writing?*". The findings showed that the strong bilingual group outperformed both SL dominant and weak bilingual groups in all aspects of writing except number of errors. The SL dominant seemed to be a "bridge" group in the continuum of language performance between the strong and the weak balanced. This however only occurred at the higher levels of writing. The SL dominant group resembled the weak bilingual when surface structures were examined (see below, 9.1).

As far as the second question is concerned "*Can we influence the process of writing by using different material?*" the findings showed that we can influence some aspects of writing but not all. For example by using sign language material we can influence the information included in the written texts and some aspects of their organisation but not necessarily the characteristics of the text (see below, 9.1). As for the third research question "*Do deaf writers' with different bilingual experiences make different use of the linguistic input?*" the statistical findings showed that the groups do not differ very much in terms of use of linguistic input with the exception of one finding: affective information of stories (see again 9.1).

The fourth research question *"Do the patterns of errors change when we change material or do deaf students always go via the same route?"* is linked to both quantitative and qualitative analyses. Since –as indicated by Question 3- the groups did not react differently to the materials, they were likely to react in more or less the same way. Both materials produced the same kinds of errors as far as statistical significance is concerned, with the exception of the omission of words, which was more frequent in the video task. However the video task as a translation task was more prone to sign language interference, which may explain the result (see also 9.1). But it may also be that the picture task, which was supposedly free from language input, produced generally similar types of errors. This may indicate that deaf students, regardless of their sign language skills, resort to sign language to form their texts at some point during writing.

Quantitative results will be discussed first, and then qualitative. Qualitative analysis of the texts revealed the existence of different writing styles among deaf students of different bilingual experiences (discussed in 9.2.4). Despite the distinct styles, the analysis showed that all deaf students shared some common (global) errors, in particular, errors of perspective, which need to be addressed (discussed in 9.2.1). Discussion of qualitative results will also address the error patterns of each group for each task (discussed in 9.2.2 & 9.2.3 respectively) and will include analysis of various bilingual or sign language specific phenomena such as contact languages, L2 acquisition, orality and visual cues, the effects of which are all present in the narratives (discussed in 9.2.5). The relevance of this discussion to the research question is to show that most error patterns can be explained within a bilingual approach where the language of input facilitates different aspects of writing, produces a variety of writing patterns, and interacts in diverse ways with competence in another language.

In summary, the structure of this discussion will start with the quantitative results, continue with the qualitative results and end with the limitations of the study and ideas for further research. This is followed by concluding thoughts about the implications of the results for deaf education, deaf writing and sign bilingualism.

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9.1 Discussion of quantitative analysis

In order to address the first three research questions two parameters were manipulated (language proficiency and material). Results were collected on each independently as well as on their combined effects. Statistical analysis revealed insights into the *effect of language group*, *the effects of material* and the *interaction between language group and material* (see 7.5).

Discussion of the effect of language group

As far as the *language group effect* is concerned, most of the results did not come as a surprise: the best performances for both the video and picture tasks were by the strong bilingual group. The strong bilingual group significantly outperformed the weak bilingual group but *not* the SL dominant group. The SL dominant group proved to be closer in performance to the strong bilingual group and acted as a "bridge" in a continuum of good to weak language competence:

GOOD LANGUAGE USE   WEAK LANGUAGE USE

⟶

strong balanced bilinguals   SL dominant bilinguals   weak balanced bilinguals

However, this bridge position only occurred at the higher levels of writing: at the *information* and partly at the *organisation* levels (varieties of propositional relationships). This is an indication that the primary levels of the writing process are facilitated by a good grounding in a language. It is not significant whether this is the language corresponding to the written one or a different one. Cognitive activities like "thinking-about-writing" are not language-specific, but are language-bound (see 3.4.1). The fact that thinking-about-writing is language bound is evident, because the weak bilingual group lagged behind the other two at the information level. Another conclusion is that sign language does not impede the first levels of writing. One should take into consideration the fact that these results not only occurred on the video task but also on the picture task, which demonstrates that decisions about the text can be made effectively in sign language even if sign language has not been explicitly involved. On the contrary it is language absence, spoken or signed, that inhibits information processing.

This placement of the groups changes when measurements of grammar and surface of the text are considered (e.g. the deep levels of the tree diagrams and the text characteristics). In *text characteristics* the strong bilingual group kept being ahead, significantly outperforming both the other groups. The SL dominant group shifted towards the weak bilingual group. This shows that "thinking-about-writing" has stopped and "thinking-for-writing" is underway. Thinking-for-writing is language-dependent (see 3.1) and is only facilitated by the language of writing. The only group, which had a relatively good level of written Greek was the strong bilingual group and the difference between this group and the other two was significant. However, this result is in accordance with previous research on hearing bilingual writers, which shows that the facilitative effect of L1 is not the same for all bilinguals and is most facilitative to the least proficient ones (see 3.4.1). This means that deaf writers, despite their atypical language acquisition, behave in similar ways to other bilinguals. Another point that becomes salient here is the relevance of the results to Cummin's "Common Underlying Proficiency" theory (1991) (see 3.2) and Mayer's claims [see 4.3.1, (Mayer, 1999; Mayer & Akamatsu, 1999)]. "Common Underlying Proficiency" has been partly supported by these results, given that as a good level of "L1" facilitated information level, but L1 stopped having a significant effect in all levels of organisation. Proficiency in a language therefore as shown by the strong bilingual and the SL dominant groups, does not transfer very deeply into the L2 process. Here Mayer may be justified saying that oral L1s cannot transfer many of their processes to L2 literacy. In the present study it is not clear whether it is the orality of sign language –irrespective of writers' proficiency- that fails to facilitate organisation and text characteristics in L2 writing. One thing is certain: that proficiency in sign language stopped having significant effects past the information level and *that* could either be because of the oral nature of sign language or because of the limits on the extent to which an additional language can facilitate L2. Whichever the case, this is an important piece of information for bilingual (and in particular deaf) education in terms of how to employ and what to expect from an additional language.

We also have a negative result coming from the SL dominant group: they were the ones who produced the most "unknown structures" among the groups. One could assume that most of the unknown structures originate from resorting to sign

language. However, one should first compare the unknown structures produced by the SL dominant with the other two groups. A careful look at the errors (which is effectively how unknown structures are classified) shows that it is the strong bilinguals and the SL dominants who produced more in their written texts. The difference is that the strong bilinguals had the Greek skills to keep the errors on a "recognisable" level whereas SL dominant did not and so they produced unknown structures and errors with greater impact, i.e. discourse errors. The weak bilinguals were the ones who produced the fewest errors yet their stories were not the best. This supports the idea that meaning can be communicated despite incorrect grammar [see 3.4.1 Malakoff & Hakuta (1991)] and that it is the level at which errors occur that is more important rather than the actual number of errors. As said in 3.4.2 & 7.4, communicative and discourse errors have the biggest effect on meaning. The paradox of this result, i.e. the weak bilinguals having very few unknown structures and the SL dominants having significantly more, can be explained from two approaches to L2 writing: "keeping up the standards" and "lowering the standards" (Larios et al., 2002). The first approach of "keeping up the "standards" via planning, rehearsing and organising information in L1 before writing in L2 seems to be favoured by the SL dominants. This results in linguistic interference and errors due to the "adventurous" language structures they can adopt. By contrast, the weak bilinguals seem to lower the standards of their L2 by reducing information, and avoiding complex structures. This results in a simple text but without the errors of the other two groups. The strong bilinguals are "keeping up the standards" but they have the L2 skills to perform at a high standard also.

When *the amount of different types of errors* each group produced was measured there was no significant difference between any of the groups. Errors are about the grammatical surface of the text and that is where all the groups converge regardless of input. This result implies that in bilingual education, the two languages taking part facilitate different layers of literacy activity. As such they should probably be kept apart and used only where they have a positive effect. The result suggests an approach to teaching literacy or writing in bilingual education where the curriculum addresses different aspects of literacy on separate occasions, ideally with different teachers using each language.

Discussion of the effect of the material

With regard to the *effect of the material* only a few measurements achieved statistical significance implying that, in general, the material used was not crucial. However, the material did elicit two significant results: one positive and one negative. The positive occurred at the deeper levels of story organisation (improved structure on the 2nd and 4th level). It is not clear whether it is sign language that facilitates the result as it occurred in all groups including the weak bilinguals who, by definition, do not have the proper skills to take advantage of the language. An explanation for this may be that the sign language material was in effect a ready-made narrative, structured by the deaf narrator. The writer did not have to go to the extra effort of organising a narrative from scratch but only needed to keep in memory the initial structure of the signed story and reproduce it as closely as possible. The fact that the "translation" task was in reality a paraphrase task means that memory played a certain role in reconstructing the meaning: once from a linguistic input and once from a pictorial input. The first had an internal organisation but the second had to be invented.

This factor (i.e. memory) may also explain the second effect of the material which was negative. This occurred at the error level, which is the surface level of the text. The video material caused subjects to omit more grammatical words than the picture material (e.g. prepositions, verbs of state/being/communication). Here it is clear that memory had kept meaning in a specific form, as this was an example of sign language interference (i.e. sign language lacks prepositions and a copula, and communication among characters is rendered via body shifts). Apart from omissions, the two types of materials produced texts with more or less the same errors. This is evidence that the language used in thinking for writing in the pictures was similar to that used in the video task. Judging from the qualitative results of errors, many of them were sign language induced. Even the picture task elicited a lot of sign language errors therefore sign language inevitably takes part during the process of writing in all deaf groups.

Discussion of the interaction between groups and material

The *interaction effect between groups and material* produced one significant result and that was related to the affective information of the stories. The strong bilinguals

did significantly better on the video and significantly worse on the picture task. The weak bilinguals performed significantly better on pictures and significantly worse on the video task, whereas the SL dominant group did not favour either task. This may be the clearest indication that the three groups are really distinct and operate on a continuum of literacy behaviour. The strong bilingual and the weak bilingual occupy the two extremes of the continuum, and the SL dominant group lies in between. More specifically, the strong bilingual group behaved like low L2 proficiency hearing students who do better in translation tasks (see 3.4.1). The weak bilinguals on the other hand were expected to perform worse on the video as they lack the sign language knowledge to carry out the translation. The picture task could probably let the writers of this group choose from a pool of linguistic strategies that they were comfortable with and so they performed better than a translation, which is assumed to be de facto. The SL dominant did not favour either the video task or the picture one. This may be the effect of very low skills in written language, which keeps standards of both tasks at the same level.

As for the other component of this result, i.e. that affective information of stories, is sensitive to the interaction of language group and material, the reasons are not very clear. One explanation could be that the strong bilingual and the weak bilingual groups, which performed in exactly opposite directions are the groups with the most contrasting language experiences. The strong bilingual group is strong in both languages and therefore exposed to the sign language cues that reveal affect. Hence they could identify affect from the video more naturally than from the picture task. On the other hand, the weak bilinguals have by definition not been exposed much to sign language and its ways of expressing affect and consequently they are not sensitive to this material. The picture material may have been more compatible with the way this group received cues about affect. In the absence of a language as well as auditory stimulus, this group may have resorted to a lot of inference about affect from other sources, primarily visual ones; hence the picture material improved their performance.

Critical period issues may also lend some insight into the results. It was mentioned in 2.1 that there may be various "critical periods" stretching from early life to teenage years and concerning different aspects of language. The order of the critical periods

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starts with phonology and continues with morphology, syntax and comprehension. The texts of the present study did not show any major problems with the phonological aspect of writing like spelling, which may indicate that phonology is not so crucial for word acquisition and a visual alternative may be equally successful (see 4.3). However, we did detect various degrees of competence in morphology, syntax and comprehension of the story content. Admittedly, the content of the stories, which is connected to comprehension, was the least impaired in general and was worst in the weak balanced group. The syntax of the stories was next worst, and the most impaired aspect of the stories was the morphology. This order may indeed show some connection with the existence of many critical periods that these deaf students went through. Deprived of meaningful language input early in life they show signs that they have been affected by the critical period for morphology and to a certain extent, by the critical period for syntax. But having the opportunity to receive meaningful language later in the school environment, these children show signs that comprehension and content stand on a better level than grammar, although for a small number this also seems impaired. It is not clear at what point this stops being an L2 incompetence issue and starts being a "critical periods" one. It may be an issue of "critical periods" in light of both the pattern of the specific hierarchy that emerges and the comments of the independent assessor of Greek L2. She commented on the overall nature of the data as *unusual* and different from the bilinguals with which she was familiar, mostly on the level of discourse[29]. The difficulty in identifying the difference between L2 processing and dysfunctional language has led to similar results being interpreted in different ways (see 2.1.1).

As a last note on assessment issues, while it is true that the written stories were the outcomes, they can also give clues to both L2 proficiency and a sign language profile for deaf students. Writing has been proposed by various academics as an alternative means of assessment and intervention (see.1.3.1). This study may reveal the potential of written products, as an extra source of information for somebody's bilingual profile: this is in accordance with literature which shows that the less proficient L2 is, the more L1 is playing a role on various levels of writing (starting from content

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[29] As mentioned before she was not informed about the students' deaf status. She first guessed they might be Kurdish/Turkish students because of the use of the "?" question-mark which is non-Greek and from the frequent lack of the verb "to be". According to her, Kurdish/Turkish children make these kinds of errors as a result of L1 transfer.

making, organising the text and using L1 surface forms to compose it). Using writing to assess bilingualism, particularly academic bilingualism is an area to be considered in both hearing and deaf education (see 4.3.1).

9.2   Discussion of qualitative analysis

The qualitative analysis comprised the description and categorisation of the deaf writers' errors. It was not possible to account in detail for all errors that occurred and develop a consistent theory to encompass all of them. It is hoped, though, that the qualitative results have raised some interesting issues and highlighted directions for further research.

First, it must be noted that qualitative error analysis is above all *categorisation of errors*, which is a method that is not without problems. On the one hand, it offers the neatness of taxonomy as it puts errors on a more measurable and observable, and therefore, scientific basis. On the other hand, the design of categories (e.g. decisions of how broad or specific the categories should be) may affect the results. That is to say, the reliability is not always guaranteed because one researcher may apply broad categories to the analysis and not find interesting results while another may apply more specific categories and obtain different results. Second, language productions are an extremely complicated phenomenon: in a top-down approach (i.e. looking at the text) one has to view things impressionistically and stick to descriptions of how the cues of the written text interconnect on various levels. In a bottom-up approach there is a danger that one can miss the bigger picture noting only unrelated cues. Also cues that seem to belong to one category may also simultaneously belong to another. Categories are not mutually exclusive and can overlap. For example, wrong word choice may exist on both lexical and discourse levels, as it may interfere with the understanding of the text.

9.2.1   Global types of errors

This discussion will start with the global patterns of errors, which occurred in all tasks and groups, and comprised three types: *morphology, perspective and conjunction misuse* (see 8.2). First, the area of *morphology* as explained before, was

too extensive to allow a meticulous description in search of an emerging pattern. Moreover, an explanation of morphological errors is problematic as most of the time it rests on assumptions about intralanguage error. In the analysis which preceded, only a few morphological errors were presented, mostly related to grammatical gender and person in the verb. Grammatical gender, although closely connected to morphology, has a profound effect on text cohesion due to its anaphoric function. Masculine, feminine and neutral are concepts one can make sense of in light of experience. Gender errors found in the text could easily be explained by the real gender of their referent and most concerned "the boy" which is neutral in Greek but was referred to as masculine. This suggests two things: one is that during L2 production, all possible sources of information are used, even experiential ones and second is that there may indeed exist grammatical features which are easier to conceive than others (see 3.4.2).

Morphological errors in verbs –apart from person- were not counted due to their large number and apparently random nature. One explanation for these morphological errors may be that, as the Greek language lacks infinitives (i.e. pure forms of verbs), morphology is an inherent part of the verb and may come up in random idiosyncratic patterns. The researcher would assume that when writing in a language with infinitives such as English or Spanish, deaf writers would accidentally "hit" on more correct instances of verbs than when writing in Greek. This is open to future research. There is research, which investigates more deeply the morphology patterns in verbs. Ajello et al. (2002), for example, say that the 3rd person verbal inflection is the most frequent in Italian deaf writing. This is an interesting finding because it contrasts with the findings of the present study with Greek students whose preference seems to be the 1st person, which will be discussed below. Morphological errors have been also connected with critical period issues elaborated in 9.1.

Also, morphological errors are not the weak point of only deaf students. Other bilingual students who learn Greek as L2 have been described as having many problems picking up morphology. Albanian and Russian students in the beginning and intermediate stages of learning Greek commit analogous errors despite the fact that their first languages are both characterised by rich morphological clitic and

agreement systems which seem not to transfer to L2 (Varlokosta & Triantafillidou, 2003, to appear).

Perspective errors are another type of error quite homogeneous in all groups and tasks. Perspective errors operate on the complicated levels of discourse and reference. The perspective errors were multifaceted (e.g. confusion in setting up dialogues, confusion in highlighting the narrator from the characters and others). In particular, dialogue scenes and reported speech were problematic. Erroneous perspective shifts seemed to be choices rather than random guesses (see 8.2) particularly when it came to 1st and 2nd person errors in verbs. This was evident from the rest of the text where the writers were using the 3rd person correctly and therefore the errors could not be attributed to ignorance of rule or form. The way in which sign language expresses interaction among characters seems to be a possible explanation for this type of error. Favoring the characters' perspective or confusing the dialogues among the characters may have to do with sign language techniques of role shifting and setting up the signer-narrator as a multifunctional key of reference. The signer can be the narrator as well as all the characters in a sophisticated alternation of foreground and background focus. Perspective errors were detected in *dialogue contexts*, in *descriptions* and at times it even affected particular *lexical choices*.

Perspective errors in dialogues and descriptions seem to be applications of sign language mechanisms for reporting speech and reporting action. Reported speech in sign language is realised through role-shifting which shows the character's thoughts, words, emotions and actions (Metzger, 1995; R. & Sutton-Spence & Woll, 1999). In role-shift, the signers use the space in front of them, and change the orientation of their eye gaze, head and body to indicate what would be "The boy said...", "The frog replied..." and so on, in a spoken language. There is no indication that sign and spoken languages' means of structuring reported reference are analogous. Explicit body shift and gaze as well as modified direction of arm movements for spatial verb inflection have been claimed to be the analogy (Papaspirou, 1997). For others the distinction is less obvious (Ahlgren & Bergman, 1990; Metzger, 1995). Ahlgren & Bergman (1990) hold that in a signed narrative, reactions and attitudes of the characters look like "false quotations". They also support the idea that all characters of a story are allocated a reference space other than the one which is taken up by the

signer. This shows an interchange between narrative perspectives as opposed to the standard "narrator" and "characters" perspectives of the spoken/written narratives. Metzger (1995) says that "reported speech" seems to be similar to "reported actions". It seems that in sign narration, both dialogues and actions are affected by the reporting context and by signers' creative blend of the two in the discourse. That is exactly what happens in the narratives of the present study: there seems to be a blend rather than a preference to direct or indirect speech. This blend goes beyond dialogues and interferes with the whole *narration/description* as seen particularly from the narrative of TASDIM (see 8.1.1.2). In that narrative, the 1st person plural is used consistently for the boy and the dog as a team, but it becomes the 3rd person singular when the boy acts separately (e.g. when he is pushed into the pond) or when another character enters (e.g. the deer). In other words there are two different layers of reference: not the standard ones of the "narrator" and "characters" but "the team" and the "non-team".

The case of reported speech (i.e. direct and indirect speech, monologues and thoughts) is interesting to relate to the semantics of errors. Reported speech is a strong narrative feature affecting the coherence/cohesion, style and evaluation of narratives. In semantic terms, direct speech keeps much of the original speakers' viewpoint in the characters' voices in the narration and so helps explore perspectives of the different characters (Maybin, 1999). On the contrary, indirect speech is used where interpretation of situations should be provided. It is important also to highlight the stylistic difference of the two types of references: direct reference is contextualised and "demonstrative", while indirect reference is decontextualised and "descriptive" (Noh, 1998). This is a typical distinction between oral and written languages where direct speech is a characteristic of oral language and indirect speech is a characteristic of written language (see 1.1 and 2.3). This is because of the lack of paralinguistic cues of written language, which had to develop in a more explicit and less minimalistic nature. Yet paralinguistic cues are rarely translated into grammatical features (Neethling, 1997) and in the case of deaf writing this can be even more serious as paralinguistic cues serve grammatical purposes. It is not clear to what extent the nature of sign language and orality are causing these results.

Selection of the wrong lexical item according to perspective was particularly obvious in the following pairs of verbs:

"βγάζω" ≠ "βγαίνω", "to take out" ≠ "to come out"

"βάζω" ≠ "μπαίνω", "to put into" ≠ "to get into"

The difference is that the first case assumes action on an object as opposed to the object's voluntary action of the second case. For example, in one instance the boy is described as "the clothes coming off the boy" instead of the correct "he takes them off". In another, the dog's head is described as "getting into the vase" instead of "the dog put its head into the vase" and eventually the mouse "takes out" of its hole instead of the mouse "coming out" of its hole. Two of the three instances arose in the picture task and therefore are not a direct translation but they can be connected to sign language structures. In signing the narrator is acting as the mouse coming out with her hand in a classifier handshape and the same happens with the dog's head and the vase. It is true that sign language is more "active" and tends to act out the event instead of describing it, as already mentioned. These errors seem to be within the general "perspective confusion" frame. Black & Chiat (2003:241) argue that verb acquisition and use, is sensitive to perspective, and people acquiring different languages "may be biased towards perceiving some aspects rather than others". There is a possibility though that these errors may just reveal difficulties with transitive/intransitive verbs.

The third pervasive error in all groups and tasks is *conjunction misuse*. The Greek subjunctive "to" = "να" is used as "and" = "και" and once again the explanation is unclear. Unlike the perspective shift errors, here it seems that the cause of the error springs from structures inherent to the target language or from written language assumptions and not from sign language. A possible explanation may be that the connector "να" due to its open vowel ending "α" is much more salient than the connector "και"; this preference has been exhibited by Italian deaf writers who favoured the article "la" over others (Ajello et al., 2002). Another possibility is that the students may believe verbs look or are more likely to be correct when using "να". The last may have to do with how frequently this type of subordination is found in written language. Oral language is more prone to use co-ordination and written language is more prone to use subordination to a greater extent (see 1.1). Maybe deaf students become sensitive to this characteristic of written language. A final

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explanation is that this is an overgeneralisation error whereby the writers perceive the function of "to" as some sort of conjunction and have understood the need for a conjunction at that particular point but have not figured out which of the conjunctions to select. "To" may act as a "generic" conjunction. It is likely that they go for the most demanding (i.e. subjunctive) rather than the less demanding (i.e. coordination) assuming that the first incorporates the second.

A final comment on the global errors is that two (conjunction misuse & morphology) out of three (perspective shifts) are *not* related to sign language. This has two implications: firstly, that interlanguage errors, are not a bigger source of errors than intralanguage errors. Deaf writers, like L2 writers, make an effort to process their texts favouring L2 techniques rather than relying on L1 (see 4.3.1). This may mean that thinking-for-writing in L2 is primarily via L2 and not via L1. Secondly, we see that these two categories of intralanguage errors (conjunction misuse & morphology) mostly concern the *grammatical form* of language production, whereas the interlanguage L1-type of error (perspective shifts) concerns the discourse of the text, which operates on a deeper cognitive level. Discourse errors are more serious than grammatical ones, as they make writing unintelligible to the reader.

9.2.2 Error patterns for each group in each task

If we look back at Figure 8-1 and Figure 8-3 we see that the figures for the strong bilinguals and the SL dominants have a similar pattern. Strong bilinguals (Figure 8-1) have more overlapping errors between the tasks but they exhibit some exclusive error patterns for each task, which means they may be sensitive to the difference in materials. The video caused both interlanguage (*packed information*) and intralanguage (*redundancy*) errors and the same happened with the picture material, which also caused interlanguage (*noun copy*) and intralanguage (*compensation strategy*) errors. This behaviour may indicate that despite sensitivity to the material, in reality the strong bilinguals recruit strategies linked to both languages, taking advantage of their knowledge of both.

The same seems to happen with the SL dominant group (Figure 8-3). They also exhibit overlapping errors as well as task-specific errors, but to a greater extent for

the video. This may mean that the SL dominant group is even more sensitive to materials than strong bilinguals. Particularly as all of the errors are related to sign language it means that they involved themselves in "keeping-up-the-standards" of sign language. This is hardly a surprise because *understanding more* of the input they attempted to translate more of it, committing inevitably a lot of errors as a result of limited L2.

The weak bilingual (Figure 8-2) does not seem to treat the video task differently than the picture task, rather it is the latter on which the students seem to exhibit additional error patterns mostly related to sign language structure. This is an unusual finding but, as has been mentioned previously, this group reacted better to picture material for a number of possible reasons (see 9.1). Committing a variety of errors means that a more complex process may have taken place, which brought forward their sign language skills as a back-up. In future research it may emerge that the group we called the "weak bilingual group", assuming low sign language competence, may be more sensitive to a visual language rather than a written language raising again the issue of deaf people being by nature sensitive to signing (see 4.1).

9.2.3 Errors specific to each task

Task specific errors are rare. There were no errors specific to the picture task and only one specific to the video task: *tense modification* (see Figure 8-4). Not surprisingly, rendering tense via lexical markers not via morphology is a sign language characteristic (see 2.2.2) and occurs on the video task, which was expected to be sign language biased. In fact the video task is less biased than expected or it may be that the picture task was processed with more sign language bias than expected. This supports the quantitative results where most of the measurements did not reveal differences. One may safely argue that thinking-for-writing in both tasks was similar and this route of thinking seemed to have passed through sign language.

9.2.4 Writing profile of groups

Figure 8-5 shows once again what the quantitative results had shown before: that the SL dominant group is a middle group in the development of bilingual writing. It is

easy to see that most of the strategies used by the strong balanced and the SL dominant group are the same. The weak bilingual group did not produce such a variety of errors and most of them did not coincide with the other two groups. The strong and SL dominant are using many of the same techniques; therefore, they have common ways of processing information. However, the SL dominant group is also using an equal number of processing information as the weak group. The middle position of the SL dominant is apparent from qualitative error analysis as well as quantitative.

We can highlight two things here. First, discourse errors were basically the text parameter that made the narratives of the weak and SL dominant groups look similar and made both of them appear so different from the strong bilingual group. Second, the weak group had the least errors in terms of both number and variety. This shows that, whereas the great number of errors of form is not necessarily linked to bad texts, the discourse errors are.

The profiles of the different groups each showed a distinct style. Strong balanced bilinguals' language use resembled that of other known bilingual populations with similar characteristics such as Albanian and Russian bilingual students or Roma children. The similarity, though, is between the best performers among the deaf students and the beginner or intermediate students of the other populations. Nevertheless, the texts of the strong balanced bilinguals reflected a variety of linguistic structures both at a grammar and discourse level (for the elaboration of the strong balanced bilingual profile, see 8.1.1).

The weak balanced bilingual group produced a style of "sentence-collection" narratives. The sentences had a standard simple style and all of them seemed to be created according to a fixed NOUN+VERB+NOUN order with few variations. The only variation in their sentence production was when they began the sentence with something other than a noun. Fixed sentence order occurs in the other groups as well, but among other strategies. This strong characteristic of weak balanced bilinguals' writing may be the result of constant drills of grammar exercises on the Greek language. These students, not having enough normal discourse experience in either language from which to deduce a sense of cohesion, can only produce exercise-like

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language (for the elaboration of the weak balanced bilingual profile, see 8.1.2). On the contrary, the SL dominant bilinguals produce a variety of different cohesive structures but in a language system other than that of writing. This means that despite exercise drills in Greek, this group has more information on language cohesion from another system, which disruptively makes its way into the L2 texts (for the elaboration of the SL dominant bilingual profile see 8.1.3).

In summary, the styles of the three groups seem to be that the weak group prefers to focus on producing correct sentences, while keeping a low profile in writing. The SL dominant group takes more risks and produces a lot of incorrect structures, and the strong bilingual group takes the greatest risks with language but also has the knowledge to construct correct language. The first two groups seem to be struggling with the mechanics of sentence formation so their discourse cohesion is either nonexistent or very weak. The last group has mastered better sentence formation and can afford attention to discourse. However it is true that a minimum knowledge of writing mechanics is necessary to inspire a decent written discourse (see 3.4.1 & 4.3.1).

Another observation worth mentioning is that within all groups there was a great diversity of performances, which may account for the lack of statistical significances in most measurements. Within this range of performances the SL dominant seems to be the one with the greatest diversity in scores and language products (for example compare the narratives of NATLOUTZ and GIOURLOG with other members of group, Appendix 18.3). Of course this might be the result of inconsistency in assessments (i.e., it could be that some members of this group belong to one of the other groups). To a certain extent this may be true for the participants of all groups. However, on the video task the SL group produced more variety in writing than on the picture task, which may show sensitivity of a bilingual population to involve both languages in the writing process. Since their sign language is of the same level, it is their experience in the target language that varies. Clearly experience in this language is of paramount worth for future research investigating larger group populations.

9.2.5 Types of errors found in texts and their relevance to various bilingual phenomena

The types of errors found in the narratives have raised some very interesting questions about the nature of deaf students' bilingualism. As mentioned in the literature review, underpinning the present research is the theoretical framework of bilingualism. This framework encapsulates a wide variety of bilingual phenomena such as the possibility of the written products demonstrating characteristics of contact languages, oral languages and code-switching. As mentioned in chapter 2.3 all of these can co-exist and may be difficult to separate. Various errors found in the texts have given evidence in support of all of the above. The most obvious was the case of missing verbs of state such as "to be", which was analysed as a sign language error. This, in combination with use of the verbs "to have" and "to be" in similar contexts, is a classical characteristic of contact languages (see 2.3). Both of these errors were present in the writing, the first also being statistically significant. This could be the result of two situations: either that of Greek sign language has contact language characteristics or that bilingual production in general produces contact language characteristics (see 2.1.1). It is also possible that both may be true and the existence of either one is strong proof of the bilingual profile of deaf students.

Other types of errors that occurred in the writing are also in accordance with contact language processes. Throughout the texts a number of content words were used for grammatical purposes. Such cases included noun modification by sequencing of nouns in a concatenative manner, modification of external tense and aspect, and use of content words as conjunctions such as "together" instead of "with" or "and". Using content words for function words is a sign of *gramaticalisation*, a key characteristic of the contact language process. The omission of prepositions, another significant result, can also be seen as a contact language as well as a sign language transfer phenomenon. Contact languages use prepositions and function words *but* in the form of content words (Pinker, 1994). Sign languages, described either as contact or as polysynthetic languages, also do not use prepositions and many other grammatical words (see 2.2.2). Another type of error, which was described as redundancy is also a contact characteristic, because contact languages use circumlocution in their syntax. However, redundancy is also a characteristic of L2 acquirers who resort to saying more than is necessary to make sure they pass on the

meaning (see 3.4.2). Topicalisation was also very prominent in the narratives. Topicalisation is not only existent in sign languages and contact languages but is also a characteristic of oral languages. Lack of subordination and use of co-ordination as a means of conjoining sentences was also present in the texts and this is another a characteristic preferred by sign languages, contact languages and oral languages. All of the above may be an indication that the written narratives of deaf students mirror not only a contact language (in this case GSL) but also the orality of this language.

There are a few types of errors that are sign language specific, e.g., noun-copy, packed information and rhetorical questions. The overwhelming majority of errors are those that sign languages and contact languages have in common. Pidgin or Creole written language could be what is being produced by deaf people. If Pidgin/Creole is characterised by a situation in which groups of people without a common code are forced to communicate then this is true for deaf writing: the written mode is frequently the only mode of communication between deaf and hearing people when neither knows sign or Greek fluently. The researcher argues that bilingualism and orality of language best explain deaf students' writing. The assumption is that deaf students' writing resembles L2 acquisition, which follows a progression similar to contact languages due to simplification and then expansion of the new code.

Orality in particular is difficult to pin down and is usually connected to minority languages, which do not enjoy high prestige from society. In the present study deaf written products are comparable in many respects to the language products of Roma children in Greece i.e. children who use a minority, oral language. Roma children have been reported to use many of the structures used here by deaf students such as topicalisation; reduced structures including omission of copula; contextualisation of their language and numerous morphological and agreement errors (Daltas, 2001).

The bilingual nature of the errors committed by deaf students is only apparent not only from the characteristics of contact languages but also from comparison with other bilingual populations. For example, Albanian children learning Greek as L2 at the beginning and intermediate stages, as mentioned above, have been reported to make many morphological errors in verb tense and aspect; in the use of subjunctive

"to" = "να" as opposed to other types of subordination; in the use of the present tense as opposed to past, and direct speech as opposed to indirect (Varlokosta & Triantafillidou, 2003, to appear).

An under-researched area in bilingual writing is the case of code-switching. It is under-researched partly because it can only take place between different scripts in informal writing and between writers who share the same bilingual background (see 3.4). These parameters are not the case for deaf writers in the present study as the writing took place in the school environment and deaf students do not share the same bilingual situation as their readers. Still, code-switching is a powerful phenomenon and some of the structures observed may be the result of it. For example, it has been reported that in writing, code-switching takes place mostly in quotations, exclamations and emphasis (Jayantilal, 1998). Given the atypical structures that deaf students produced in reported speech it may be that there is code-switching occurring between narration in Greek and sign language dialogues.

Up to now, the errors have been considered in light of various bilingual phenomena, or relative to particular hearing bilingual populations. The writing which the Greek deaf students produced here has a lot in common with the writing of others such as Italian deaf writers. Ajello et al. (2002) observed structures such as : a) generalised present tense, b) two different determiners used together, c) dominant masculine, d) omission of main verb, e) agreement in endings, and f) lexicalisation of grammar most of which were also detected in the present study. These researchers explained their results as being particular to deafness (see 4.3), but in this study the same errors have been explained bilingually. For example (e) was described here as syntactic/grammatical gravity where a structure "spills" into neighbouring structures, (see 8). Other errors were described as semantic for example (c) where the prominent masculine gender was determined by the character's real gender. It is possible, though, that parameters other than bilingualism, such as visual aspects of language processing due to deafness, are much more pervasive in deaf students' writing than the results of the present study suggest.

Two further areas for discussion concern the visual aspects of writing (i.e. facial expression, spatial manipulation, etc.): the absence of visual cues and the presence of

visual cues. The first has been blamed for the prevalence of poor and unsophisticated sentences in deaf writing. It is true that deaf students have not been directed to pay attention to the concurrency of their visual language and consequently do not interpret the unfolding progression of signs as they relate to facial actions (Swanwick, 1999). Educational practice needs to pay attention to this aspect of deaf studnets' perception of the world and sign language, i.e. that paralinguistic information is important grammatically, and should *explicitly* receive attention during the teaching of deaf students. Attention to facial expression is not only about making the text richer and more sophisticated. It has also been described as marking structures such as subordination, i.e. relative clauses and negation (see 2.2.2), and it plays a prominent role in marking reference an area in which the present narratives suffered greatly.

The relevance of visual cues became most apparent in the "packed information" errors. This structure occurred in varying degrees in all groups and particularly in the SL dominant group. Packed information is an indication of the concurrency of sign language mentioned in 2.2.1 and specifically relates to *referent placement*. Placement is a crucial structure in sign language discourse directly connected to sign's concurrent visual nature. When signers start narrating, they place their referents in signing space and point to the locus that each occupies. As referents are cognitive products of a narration, index points serve anaphoric purposes. Apart from signing or pointing to the referents, reference is also shown by other means such as facial expression, eye gaze, head orientation and body position. In such cases, reference is not lexically determined. Before the signer makes use of these elements s/he has already organised the sign space, which is now loaded with semantic information. Any shift or index to a specific locus refers now to whatever this locus represents. Reference in signing is determined by the use of space since both manual and non-manual elements of reference are possible because of space. The more the signer shifts perspectives, the more s/he seems to use non-manual components of the language. The less s/he shifts perspectives, the less s/he seems to use non-manual components. However, space is still crucial for reference since indexing and verb inflection take place there inevitably.

Placement is difficult to render in a linear process such as writing. It means that the referents (i.e. the nouns) are marked first and then the interaction follows (i.e. the verbs). The structure of placement and its concurrent activities of body shifts and facial expression is particularly difficult to separate from other constructions, particularly from serial verbs constructions which are indicative of Creole languages. Nevertheless, to this researcher, sentences such as the ones below (example taken from SL dominant narrative) are strong indications of initial placement of referents and reference to them afterwards:

> The boy the strawberries the girl to comeback walks the pavement will know the man the shop.

▼

> Το Αγορι τις φραουλες το κοριτσι να επιστροφη περπατει το πεζοδρομο θα εγνωριει τον ανθρωπο στο μαγαζι

The above example is how the Strawberry Lady story is set in sign language: the boy (i.e. the fruit seller) the girl (i.e. the old lady) and the strawberries, are mentioned first without any coherence between them. Verbs start appearing after the referents are introduced and refer to the woman "coming back from her shopping" and "knowing the man at the shop". This concurrent style of narration has been seen many times in the narratives (see qualitative results: 8) and to this researcher, reveals concurrent spatial/visual arrangements of narrative referents. If the processing of sign language is more compact and less sequential, this is something that contrasts with writing which is sequential-linear. Here, educational practice may need to work on contrastive translation between languages and hopefully future research on visual processing of sign languages will make such issues of language equivalents, clearer.

As far as the spelling errors of this study are concerned, once again deaf students did not have problems. Indeed, this was one of the biggest distinctions between deaf bilinguals and hearing bilinguals that was noted; it is in agreement with Fabbretti et al.'s (1998) findings (see 4.3). Spelling errors were not included in the statistical analyses but were described in the qualitative analysis. It should be pointed out that the picture task seemed to have produced more spelling errors in general than the video task. This may be an indication that picture rather than video stimuli activate phonological processing whose side-effect is spelling errors. After all, hearing bilingual writers produce many spelling errors because of phonological processing.

The video, conversely, may have activated more visual processing. However, the most obvious "visual" error between the letter pair "ξ & ζ"[30] and the most obvious "phonological" error between the letter pair "κ & χ"[31] both arose in the picture task, thereby complicating any straightforward conclusion on task processing. Finally, not all spelling errors are easy to classify as phonological or visual (e.g., overinclusions or omissions of graphemes).

9.3 Limitations of the present study & ideas for further research

The study had to handle a variety of difficulties that limit the generalisation of the results and question some aspects of data validity. The most pronounced difficulty of the study concerned the *assessments*. Although the assessments were not the focus of attention they were essential to categorisation of subjects and they raised a variety of issues. Firstly, they were the most demanding and controversial part of the research, particularly those that concerned sign language (see 4.3.2 and 6.2.1 for the theoretical and practical difficulties that had to be overcome). All correlations for agreement between the assessors, showed significance and therefore are indicative of reliability but the lowest are the sign language correlations. The reason is that Greek sign language has not been sufficiently described and its characteristics are still undefined, if not unknown, to teachers of deaf students. Most of them therefore may have judged from intuition or from their own sign language knowledge, their attitude towards sign language, etc. Despite the effort to define criteria, the sign language assessments used in this study can be challenged. Greek language on the other hand is not only better defined in its form but also criteria for assessing it have been developed and practiced in schools for a long time. It is natural therefore that on the Greek language assessments, the correlations were higher. Yet the researcher believes that even those assessments can be unreliable, albeit to a lesser degree, because teachers are not used to assessing Greek as an aspect of sign bilingualism. It may be that other populations learning Greek as L2 (e.g. Albanians, Russians) are better assessed because their bilingualism/biculturalism is better defined.

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[30] The two letters look similar
[31] The two letters sound similar.

A second issue to emerge from the assessment process and which limits the generalisation of results is that a fourth group was expected to appear: the Greek dominant group. That group was to include all deaf students who were educated orally and had better Greek than sign language skills. Such a group did not emerge; there was no one who had developed better skills in an oral language than a visual one. This does not mean that there are no deaf people who have acquired oral Greek successfully. However, it may be indicative of their relative rarity which could be considered as further evidence that deaf people should be regarded as bilinguals (see 4.1).

In the present research there is little reason to assume that assessors would not genuinely appreciate the Greek skills of their deaf students. They were more likely to misjudge their sign language skills than their written Greek. Yet none of the students was rated higher in Greek than in sign. However two texts attracted the attention of both the researcher and the independent assessor of Greek as L2 as superior to the rest (see Appendix 18.1, stories of STATA and ANTSIN). Despite this high level of performance in Greek, it was still possible to detect their non-nativeness. As these two subjects were also very competent signers, their performance in written Greek could be considered a positive result of their bilingual nature, i.e. they represent examples of the potential benefits of sign bilingualism.

A further issue, which could also have had an impact, not only on the assessment process of both languages but also on the language proficiency of deaf students as such, is the culture of the school. The researcher sensed that each of the three schools had a distinct "culture". One of these was residential with a large number of students, many strong signers and with deaf and hearing staff who were familiar with deaf issues and sign language. The second and third schools had fewer deaf students and one of the two was based within a hearing school. In one of these schools, the researcher sensed a less positive attitude towards sign language, even from the deaf students. For example, in conversation with some of the students about GSL and Greek a strong preference for Greek over signing was evident. In the other schools the culture seemed to lie somewhere in between. Future research could possibly

address this socio-cultural issue of deaf students' performance in relation to the culture of the school in which they are educated.

A serious limitation of the present study is posed by the small sample size. The population from which it is drawn is very small in Greece (see Lampropoulou, 1994), so it is not surprising that the sample is very small. However, in statistical terms, the quantitative results have serious limitations of generalisability and they should be viewed within these very tight limits. More specifically the quantitative results of the present study cannot be considered as a basis for policy-making in deaf education as a whole. However, the results found in this small sample are true for this sample, which *is* nonetheless a big chunk of the deaf Greek population at the end of high school education. This means that the quantitative results could be used to indicate trends for various tasks in educational practice. As such, teachers and practitioners may find these results more useful than policy makers. The fact that the statistical results came from a very small population means that there may be more significant effects in a larger population. This is a call for future studies with the same design but based on a larger sample to be carried out, whereby the task effect can reveal its power. In this study the qualitative results may be of most value, along with some of the more interesting case-studies that have emerged from the sample.

In the present research, there were few significant results compared to the number of measurements taken. This could be because of the small number of subjects. Nevertheless, the fact that there were some statistically significant findings implies that the effect of materials on performance may be great. The effect may become more obvious in future research with larger groups. The general trend though was that the strong bilinguals and the SL dominant subjects did better on the video task and that the weak bilinguals did better on the picture task. The video may have yielded better written narratives, but it also elicited the greatest diversity of performances. Measurements based on a bigger sample would be able to reveal any genuine effects of the material on the performance of different groups and this is a direction for future research.

Another difficult and controversial part of the research was the *text analysis*. It seems that there is little agreement on how to transcribe and/or investigate atypical written

language. Techniques can be borrowed from various disciplines (e.g., follow "oral" methods to deal with written products) but still the researcher is left very much up to his/her own devices and assumptions. In particular, the organisation of content has been elaborated in the literature, on data of a high standard of writing, mostly writing for academic purposes and with a preference for expository genre (see 1.3.2.2). The criteria used in literature for rhetorical analysis generally are not dependent on the grammar to the degree that the present study has been. The researcher considered the tree diagrams developed by Langer (see 1.3.2.2) to be the best compromise in order to investigate the narrative genre in students' educational contexts. What was missing from Langer's tree diagrams was the atypical language discourse of her students. Also some standard measurements of written language such as sentence complexity, number of words per sentence, clauses per sentence, clauses in text, etc. may not be appropriate measurements for atypical texts analyses. For example, a high index of "number of words/T-U" was not necessarily correlated with good quality of texts. This shows that some indexes should be reconsidered when atypical language texts are being studied. It is also necessary to develop a variety of measurements that address atypical language issues.

Apart from its limitations, the present research has raised interesting ideas for exploration in various areas. A first suggestion is the great potential that *self-correction* has as a research method. In research on writing, *self-corrected* errors are studied in order to separate mistakes from real errors. It would be interesting to see what kind of errors deaf students can self-correct once they are told they are wrong. This will give more insight into which structures are really unknown to them about their L2. It is possible that the present research is tougher on their writing ability because a number of errors found might be easily identifiable and even correctable by the writers themselves. From an educational point of view it is important to see not only how a learner performs in one short timeframe but also to see the pace of self-improvement.

Another interesting area for further research is to observe what deaf subjects do whilst writing. For example, we can observe the kinds of questions they ask when seeking help and whether these concern spelling, grammar, discourse etc. Additionally, we can determine whether they use mouthing, signing, fingerspelling,

etc. whilst writing. This could then be compared with students with different levels of sign language and writing skills. Sometimes the learner himself gives away not only the way to his inner-processes but also the way s/he can best be helped. Think-aloud protocols are another method to access inner-processes although they require metacognition and they cause segmentation of a process that ought to be constant (i.e. the subject being at the same time the object and subject of investigation). Think-aloud protocols are a valuable insight into how the mind works but cannot be used with all populations, e.g., with young children. In deaf writing, observation and think-aloud protocols have rarely been used and where they have been employed, they have yielded very interesting results about mind processes (for example see Mayer, 1999 in 4.3.1).

It would also be interesting to compare deaf students' production of different written genres, e.g., composing their own narratives vs. composing their own expository texts. In the present study the product chosen was the easiest possible, i.e. retelling from a video or a picture task. In the case of creating their own text, it would be interesting to see how sign language and sign discourse interacts with the information and organisation of the text particularly on a demanding composition such as argumentation. An investigation such as this can include comparisons between situations such as elaborating the theme beforehand by signing as opposed to no preparation, or signing the narrative before writing it or not. Results may vary as language behavior to a certain degree is organised around function (narration and argumentation are two different functions) and not only around levels of language performance. Also most of the studies in L2 writing have been done in argumentation and we need substantial data from the deaf population to compare with hearing bilingual writers.

The results on affective information of the stories have also suggested a challenging area for exploration. The study of aaffective information is an interesting field because of its relation to ToM (theory of mind) issues. It would be interesting to compare deaf children with hearing bilingual populations and see whether they lag behind in perceiving affective information from various inputs. It has been claimed that deaf children, due to language deprivation, are in danger of not developing ToM (Courtin, 2000; Peterson & Siegal, 2000). It may be that some aspects of ToM (e.g.

false belief) are absent in deaf students because their attention as youngsters was not directed to others' feelings or their interpretation of somebody else's state was rarely required. Deaf children in hearing families not only grow in a poorly stimulating environment for language and world awareness but this environment can also be unusually over-protective. As a result, deaf students' narratives may lack much affective information compared to other bilinguals. Future research may also indicate how the material relates to ToM, i.e. whether it facilitates their written skills, and indicate which aspects of ToM are at risk.

In discussing the quantitative results, (9.1) one of the explanations offered for the discrepancy in errors of morphology, syntax and content was the "critical periods" issue. If there is indeed a range of critical periods and if there is also a specific order of these periods as discussed in the literature review, then it would be interesting to see if they can be detected or confirmed from the writing process. It may also put expectations about their performance in perspective.

A last area for further study raised by the qualitative results in particular concerns the errors connected with spelling errors. Although the present study did not explicitly manipulate and study them, they are important for deaf education because as mentioned before (see 4.3), writing can be processed phonologically as well as orthographically or articulatorily (i.e. visually). It would be interesting to see which material produces more phonological (e.g. based on sound similarity) or orthographic/visual errors (e.g. based on grapheme similarity). The present study did not account for this distinction at all at a statistical level but there was an effort to describe spelling errors in the qualitative analysis. Future research on this topic would definitely give insight into whether different spelling processing may be triggered by different material as well as whether individual language groups commit different patterns of spelling errors. In relation to this, we could also mention an issue raised by the external assessor: that the deaf sample seemed to be a special bilingual group because they were unusually good in orthography. This comment has important implications. Here we have a population that does not possess phonemic awareness yet their spelling is relatively unaffected. The visual methods used by the deaf subjects may indicate a tactic for visually training other cases that have problems at the level of word formation such as dyslexia.

9.4 Conclusions

In conclusion we can see whether the hypotheses of the study have been supported (see 6.3). These were:

- *The different bilingual groups will produce different texts in quality and quantity with different characteristics in organisation, grammar and information.*

- *The picture and video material will produce different texts in quality and quantity of organisation, grammar and information produced.*

- *There will be an interaction between the groups and the material.*

The results showed that the hypotheses were met partly, given that not all results revealed statistical significance. However, the fact that significance appeared on certain levels but not on others confirms the view that writing is a multifaceted process in which the material used facilitates certain layers and does not affect others. Also, the material used appears to be recruited in different ways and for diverse purposes from students with different language proficiencies.

The effect of sign language on writing demands attention to the issue of how to use it most effectively in schools. Even if sign language has been accepted as a language for use in deaf education, deaf students' sign language skills are still not routinely assessed or even scrutinised. Deaf students should be treated as bilinguals with varying skills in sign language. The consequence of such an approach may be to consider grouping deaf children in classes according to their language skills and not according to their age. This of course will only be fully feasible when assessments for sign language are developed and standardised.

A second conclusion from the results is that teachers can use different types of source materials for different purposes. Teachers need information about what types of materials can be used in order to improve specific aspects of writing. Not in all circumstances and with all deaf students will the presence of a sign language work positively.

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A third conclusion is that the presence of surface errors was the only negative effect of the sign language task on all groups. In all the other levels of analysis, the strong balanced bilingual group significantly outperformed the other two groups. Even though errors were present, the texts with the greatest number of errors were not necessarily the worst texts. Error counting is a fairly low level of analysis, and meaning can be passed on even in the absence of correct grammatical form. What makes a good text is the provision of all necessary information, good organisation and good discourse manipulation. These, were more often than not, better with the sign language source material.

As a conclusion on the writing itself, this has always been viewed as a self-explored process rather than a process possible to be explicitly taught. As shown by the different results in different levels, teaching writing in bilingual education, and in deaf education specifically, could be broken down into discrete categories of planning and forming which may even be presented in two different languages. Explicit instruction can be applied to teaching writing rather than treating writing as if it were a talent.

The present study has various implications for the newly applied sign bilingual deaf education. The study demonstrated that deaf students' written language errors could be explained as bilingual errors. Given the fact that the deaf students had most likely, an unusual language acquisition, it may be that their writing is not 100% bilingual but also a reflection of communication and academic problems and should be seen in light of language learning difficulties. We must view deaf education rather as a special case of education where the use of sign language is imperative as the only language compatible to deafness. This means that the politics of hearing bilingual education may be less relevant to deaf education than was believed before and that sign language is really imperative for deaf education. This means that the teachers of the deaf students should be able to handle sign language at a level capable of communicating with their students and use it for their students' advantage. Literacy is a metacognitive function and knowing a language very well does not make one necessarily efficient in using it for literacy purposes. Nevertheless, if teachers are masters of sign language, educational practice may improve dramatically without necessarily waiting for progress in other areas such as sign linguistics and

assessments. In addition, introducing into deaf education teachers who are proud to use sign language, can empower deaf students, which is another parameter with potentially positive academic results. As mentioned in 3.3.1 the language of instruction is only a surface structure and power relations can be expressed via two languages as well as via one. Bilingualism is not the answer unless it is accompanied with empowering philosophy. In educating deaf students we must ask what the problem is: is it that they are not getting instruction in sign language or that their identity as deaf person is not accepted and empowered? Sign language is only one aspect of this empowerment yet an important one. We must consider here the general attitude towards sign language as poor and unsophisticated (similar to the attitude towards Creoles). If this seems to be true, it is probably because we manage to make the users of these languages use them only for basic types of communication. Yet a language is only as good as its users and its use. If we keep the deaf population in a situation where they will always have to struggle for basic communication, the language developed will only be good for basic communication. We need to raise standards of deaf life, expectations, ambitions, education, and work prospects so that their language will be used in more situations and will ignite the innate creative potential that all languages have (i.e. creation of new vocabulary, terminology, structures of a more literate mode, etc). This may then become the link between the written code of spoken language and the oral code of sign language: *the context of use*. Mayer (1999) advocates that it is the context that is transferable and not the language skills. Therefore if sign language cannot be made capable of functioning academically in an academic environment it will never facilitate any literacy activity.

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13 APPENDIX 3: TABLE FOR MEASURING AMOUNT & TYPE OF INFORMATION

13.1 Table for the Strawberry Lady

Story grammar	Basic story lines	Descriptive info (action, events, descriptions)	Affective info (manner/ characters' interaction/ inner state, thoughts)
SETTING	Lady buys strawberries	• Time/character introd/ • Place/ At grocer's shop/ • Scene (grocer prepares the box)	Lady- careless/ happy/ Grocer-friendly
REASON	• Man follows her • Man tries to snatch box	• Time (while she was walking/after she left) • Place (street/ shops/ out) • Scene a strange man follows her/ woman ignorant/ says hello to flower lady/ lady senses him/ man tries to snatch the box but fails	Lady- careless, friendly, talks to flower lady Flower woman- friendly, talks to lady Man- strange look/ strange clothes, bad, poor, homeless, hungry, wants to eat strawberries
ACTION	• Man starts chasing woman • She always manages to escape	• Time • Place (bus/ woods) • Scene Lady runs to bus/, another lady was coming on a roller-skate/ Man missed lady/ Man falls on other lady/ Bus leaves/ Bus arrives to woods/ Woman gets off but man comes with roller-skate/ Man chases woman into wood/ Woman escapes/ Man always behind/ Woman hides behind tree/ Man spots her/	Lady- frightened/ in hurry Woman relieved/ Strange atmosphere/ Lady- scared

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		Woman climbs tree/ Man spots her/ Woman swings away from tree/ Man spots her/ Man looses her/	Man- puzzled/ unhappy/desperate
CLOSURE	• He eventually finds raspberries and forgets her	• Time • Place • Scene Man finds a raspberry bush/ Starts eating and forgets the lady/	Man-happy/ excited
	• She arrives home and gives strawberries to her family	• Time (after/ eventually) • Place (home) • Scene Woman arrives home/ Gives all family the strawberries/ Box empty/	Lady- relieved Family members have good time/ happy
TOTAL	TOTAL	TOTAL	TOTAL

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13.2 The table for the Frog Story

Story grammar	Basic story lines	Descriptive info (action, events, descriptions)	Affective info (manner/ characters' interaction/ inner state, thoughts)
SETTING	Boy & frog have frog	Characters' introduction Time (night) Place (boy's room) Scene (they look at frog in a jar)	Boy- contented/ sleepy Dog-contented/ puzzled/ wants to play Frog- puzzled/ frightened/ happy
REASON	Frog escapes	Time (while boy & dog sleep / during the night) Scene (out of jar & off the window)	Frog
ACTION	Boy & dog set off to find frog	Time (later/ in the morning/ when they wake up) Scene (get dressed/ look in room/ shoes/ under bed/ dowers/ into jar/ call from window/ dog fells/ they set off)	Boy- puzzled/ worried Dog- puzzled Boy- scared/ angry/ tells dog off Dog- thanks boy
	They get involved in many adventures	Time (then/ after) Place (forest) Scene Dog & beehive/ boy & hole/ dog throws beehive/ boy finds rat/ dog is chased by bees/ boy & tree hole/ boy is chased by owl/ boy & dog run/ boy climbs rock/ dog sniffs around/ boy caught by deer's antlers/ deer runs away/ deer pushes boy off cliff/ boy & dog fell into water/ boy hears something/ boy tells dog to be quiet/ they look behind trunk/	Dog- plays Boy- curious/ Dog- worried Dog- scared Boy- scared Dog- cautious Boy- surprised Boy & dog- alert/

CLOSURE	They find frog with family	Time (then) Place (behind tree trunk) Scene boy & dog look at frog & wife/ baby frogs appear/	Everybody is happy Boy & dog- surprised Frog- apologises for leaving/ wanted a family/ wants to stay in the woods/ doesn't wants to go back home/ Baby frogs are sweet
	Boy & dog take little frog and go home	Time Scene boy and dog take little frog/ say good bye and leave/	
TOTAL	TOTAL	TOTAL	TOTAL

14 APPENDIX 4: TABLE FOR ERROR ANALYSIS

Level	SUBSTANCE	TEXT		DISCOURSE
	Grapheme/Spelling/ Punctuation	**GRAMMAR** <u>Class</u>: noun/verb/adj/adv/ prep/conj/article/ pronoun	**LEXIS** Sense relations collocations	Cohesion/ coherence
Modification				
Omission				
Over- inclusion				
Misselection				
Misorder				
Blend				
random				

The above table was adjusted from James, C (1999)

16 APPENDIX 6: THE FORMS DISTRIBUTED TO THE STUDENTS

Forms for the Strawberry Lady

THE STRAWBERRY LADY _Name/surname:_ _Age:_ _Class:_	**Η ΚΥΡΙΑ ΜΕ ΤΙΣ ΦΡΑΟΥΛΕΣ** _Ονομα/επώνυμο:_ _Ηλικία:_ _Τμήμα:_

Forms for the Frog Story

THE FROG STORY _Name/surname:_ _Age:_ _Class:_	**Η ΙΣΤΟΡΙΑ ΜΕ ΤΟ ΒΑΤΡΑΧΟ** _Ονομα/επώνυμο:_ _Ηλικία:_ _Τμήμα:_

```
                                    Sequence

Sequence      Sequence        Sequence        Sequence        Sequence        Sequence

Ev Ev Ev    Ev Desc Ev Ev Ev  Ev Ev Ev Desc  Ev Ev Ev Dec    Ev Desc Ev Eval  Ev Ev Ev

1  3  4     5  6    8  9  10   11 12 13 14    18 20 21 23     25 26  27 28      29 30 31

|              |                      |       |  |  |  |
Cau            Eval                   Expl    Desc Adv Expl

2              7                      15, 16  19  22  24

                                      |
                                      Adv

                                      17
```
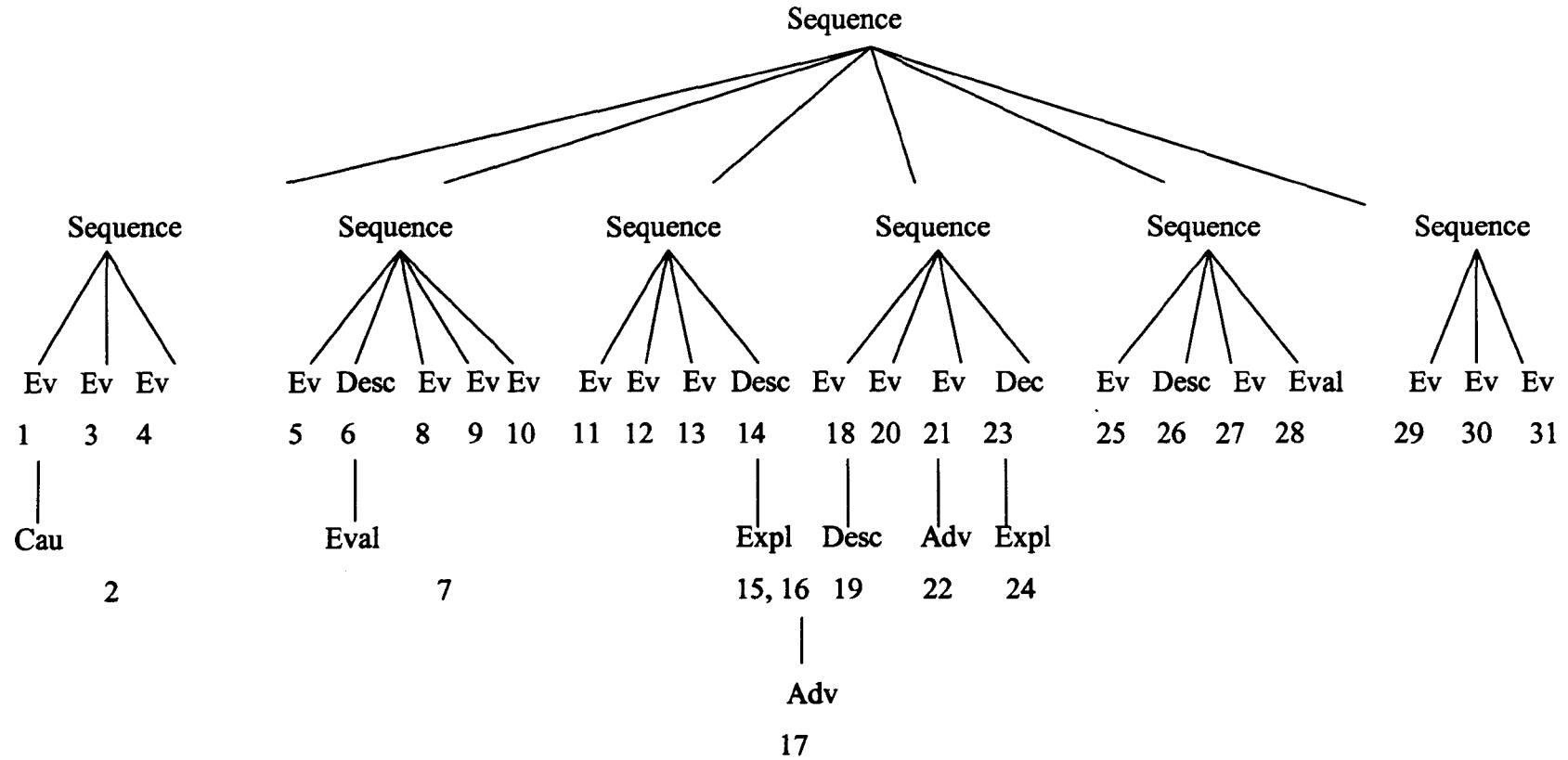
EVMOU'S VIDEO STORY IN CLAUSES ON WHICH THE DIAGRAMM IS BASED

The Greek text:

1. Η Κυρία πήγε στο μαναβη
2. για να αγόρασει τις φρουλες
3. πληρώσε
4. και έφυγε.
5. Αυτή περπατήσε στο δρόμο,
6. ξάφνικα κάποιος αγόρι είναι παραξένο
7. το προσώπο του σαν είναι μαγισσα.
8. Αυτός ακολουθήσε την κοπέλα
9. και θέλει
10. να πάρει τις φραουλες.
11. Η κυρια ετρέχε
12. *και ήρθε το λεωφορείο*
13. μπήκε μεσα.
14. Αυτός είναι στεναχωρισμένος
15. γιατί θέλει
16. να φάει
17. άλλα δεν έχει.
18. Αλλη φορά πάλι αυτός είδε μια κυρία
19. που έχει τις φραουλες
20. έτρεχε
21. και ακολουθήσε,
22. άλλα κυρία εξαφανίστηκε μεσα στο δάσος.
23. Όμως είναι αγορί απογοητευτικός

24. γιατί δεν βρίσκεται τις *φραουλες.*
25. Καποια μερά αυτός είδε
26. στο δάσο είναι φραουλες.,
27. εφάγε
28. και ευτυχισμένος.
29. Η κυρία πήγε στο σπίτι της
30. και έδωσε σε όλους οικογενεία *της*
31. *και εφαγαν*

The English translation of the text:

1. The Lady went to the grocer-man

2. to buy the strawberries

3. she paid

4. and left.

5. She walked in the street,

6. suddenly some boy is strange

7. his face like is witch.

8. He followed the girl

9. and wants

10. to take the strawberries.

11. The lady was running

12. and came the bus

13 got in.

14 He is sad

15 because he wants

16 to eat

17 but doesn't have.

18 Some other time again he saw a lady

19 who has the strawberries

20. was running

21 and followed

22 but lady disappeared in the wood.

23 But is boy disappointing

24 because not is-found the strawberries.

25 Some day he saw in the wood

26 there are strawberries,

27 ate

28 and happy.

29. The lady went to her house

30 and gave to all her family

31 and ate

17.1 Criteria used for deciding the content of the clauses

→ **Descriptions** were the clauses with the verb "to be", e.g. "there is a room small". Very frequently the verb "to have" has the meaning of "there is" which also makes the clause Descriptive:

> ...*has a glass* vase where the frog is inside" = meaning "there is a glass vase...

<div align="right">STATA</div>

Also relative clauses fell into this category as the second clause describes the first:

> The little dog jumped suddenly from the balcony and broke the vase *which had on his head* little dog

<div align="right">STATA</div>

→ **Evaluations** were the clauses with the verb "to be" or other state verbs but followed by evaluative comments such as "the dog is happy".

→ **Cause** clauses describe a "before" and "after" relationship. The most obvious indication is the "in order to" or "...to..." and there has to be an *intentionality to cause*. Usually all the subjunctive clauses where the first verb is a verb of action can fall in this category:

> ...went to the window to see outside the yard

<div align="right">GEOSOM</div>

The criteria was not the subjunctive connector "to" but the meaning of the clauses joined together. That was because in many occasions the connector "to" was used with the meaning "and" which is a coordinate connector. This was a consistent and widespread error in most of the writings.

> She-walks *to* think that the children you-liked-them the strawberries

<div align="right">GIORGPAP</div>

→ **Explanation** is a straightforward category as it is mainly detected by the use of "because" and "because of". There were a number of clauses though of the "...want to..." kind, which fall into the Explanation category, as the second clause in these constructions comments or explains the first.

> the frog he-told-him sorry that I escaped because wanted to marry a woman

<div align="center">300</div>

→ **Remark/Response** & **Question/Answer** categories refer to any intent to animate the story. The difference between them is that question-answer is specific whereas remark-response is general to any interaction. Semantically they all fell under the same concept –that of animation- so when they occurred together they did not count as different categories.

Remark/Response She tells him "I would like a kilo of strawberries". The grocer man tells her "Yes we have, all fresh!"

Question/Answer –What do you want? –I want a kilo of stawerries

17.2 Criteria used for text characteristics

The criteria used to define deviant T-Units, clauses and T-Unit complexity are:

- *T-Units (T-U).*

In present research the T-Us were equal to sentences. A sentence in well-formed narratives was defined from fullstop to fullstop. There were sentences though, were the punctuation and conjoining of clauses was problematic, and the above definition could not be used. In such cases, the different T-Us were judged according to the following criteria:

a. A different T-U begins when new reference to a character is implied even if this is the same character the previous T-U was talking about. For example the following is a fragment of a narrative where punctuation is almost absent:

> The grandma is walks the child is a bad steals strawberries wants to eat the child has is-following the grandma

> FOTFOT

The separation of T-Us was where the reference seems to change topic, i.e. The grandma is walks‖ the child is a bad steals strawberries wants to eat ‖ the child has is-following the grandma. Therefore, here we have 3 T-Us.

b. A different T-U begins when temporal/spatial/ or other indication of change of topic is inserted in the middle of discourse. For example:

> In the morning boy and together dog he-wakes up after will-be-going to see inside box the frog

> VALKONT

The separation of T-Us has been decided to be where there seems to be an indication of changing topic with discourse markers such as "after" in this case. So, e.g.: In the morning boy and together dog he-wakes up ‖ after will-be-going to see inside box the frog. Here we have 2 T-Us.

- *Clauses.*

In the present analysis the clause is determined by the presence of one verb in all cases. The reason is twofold: firstly a verb alone can be regarded as a sentence or a meaningful unit and secondly the Greek language does not have infinitives (i.e. pure unmodified forms of verbs). So, just the presence of a verb could constitute a clause in Greek. This is not the case in English where the phrase: "The lady

wanted to buy strawberries" is considered one clause as the verb "to buy" is infinitive and does not constitute a clause. In contrast, the same sentence in Greek would be two clauses. So the following example is segmented as:

There was a grandma ‖ who <u>went</u> ‖ <u>to buy</u> strawberries

PANPRISK

Another reason for segmenting the text into the smallest phrases was that it helped when counting errors. For example if the above definition was adopted then clauses like the ones below, would be considered one:

The boy I-wanted to he-sleeps

IRIPONT

Although it is difficult to represent exactly the type of error in English it is obvious that the two verbs are not in agreement with the subject –in fact the first verb is wrong and the second is correct. In error counting this is problematic: is the clause correct or incorrect? The whole approach in the present research is to segment as far down as possible and only account for the erroneous bits.

The criteria used to determine the clauses more specifically are:

a.   It was noted that verbs like "to be" and "to have" *when they are next to* other non-state verbs, act as modifiers therefore their presence did not constitute clauses. For example:

The grandma <u>is went</u> ‖ is-shopping strawberries. ‖ The grandma <u>is walks</u> ‖ .

FOTFOT

b.   Auxiliary verbs do not constitute a single clause (i.e. must, can, may, have)

c.   There were many instances of absent verbs especially with particular groups of verbs: state verbs (i.e. "to be"," to happen" "to appear") and communication verbs (i.e. "to say", "to ask", "to reply" "to think"). In the cases were the absent verb is easy to imply from the context, then a clause is counted even in the absence of a verb:

Eventually he-went to the woods to find it, called many times ‖ *but nothing*!

STATA

In the example below though it is not obvious what is missing:

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<div align="center">The woman asks one kilo the strawberries

▼

Η γυναικα ρωταει ενα κιλο τα φρουαλα</div>

<div align="right">ARILIA</div>

It could either be "The woman asks for one kilo of strawberries" or "The woman asks how much one kilo of strawberries cost". Nevertheless this is not clear and the clause was segmented.

- *T-Unit complexity*

In a deviant use of language such as the one investigated here, we must find a way of explaining how words are used and which are the criteria for what constitutes a "complex" structure. These are the following:

a. Any correctly used subordinate/subjunctive structure or coordinate structure other than the "and" type

b. Any item, which modifies verbs or nouns: adjectives ("beautiful sweet little frog"), adverbs ("he was walking slowly slowly"). The adjectives do not count when they occur without their nouns (e.g. "the bad steals strawberries" = "το κακο κλεβει φραουλες"

c. Unusual vocabulary ("in-good-mood" = "ευδιαθέτος", "in-wondering-state" = "απορημένος")

d. Correct clitic system especially in the pronouns of the indirect objects, which is acquired late from the Greek as L2 learners (e.g. "And again she understood him that he followed her" = "Και παλί τον καταλεβε ότι την ακολουθησε"). Declines of nouns especially the possessive one.

e. Any correct attempt of tenses other than present and past. Especially the perfect tenses.

f. Participles especially the active voice ones (e.g. "she left *running* to catch the bus" = "εφύγε τρέχοντας για να προλάβει το λεωφορείο")

g. On a more holistic discourse level the use of beginning sentences in a decontextualised way. For example beginning the story with indefinite determiners or time/space phrases and other elaborated and stylistic ways than the typical S-V-O

     e.g.   <u>A</u> young woman has got family

<div align="center">304</div>

Μία γυναίκα, νέα έχει οικογένεια

While she was walking...
Καθώς περπατάγε...

Eventually they were full of bees
Τελικα γεμισαν σφηγκες

The marking was as follows: every item received one point and the accumulation of points was measured against the number of T-Units. For example, GEOTSA in her video story scored 12/15 (73%). This means that she produced 12 complex structures in a total of 15 T-Units and therefore the 73% of the T-Units had some sort of complexity.