Awareness of Developmental Language Disorder among workplace managers

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Abstract

Background: Developmental Language Disorder (DLD) is one of the most prevalent developmental disorders and affects expressive and receptive language with no clear cause (Bishop et al., 2017). Awareness of DLD is currently much lower than other (sometimes less prevalent) disorders such as Autism or Attention Deficit Hyperactivity Disorder (ADHD) (Bishop, 2010). Despite this, it has now been established that the implications of DLD reach well into adulthood (Botting, 2020; Botting et al., 2016; Clegg et al., 2005; Johnson et al., 2010). Thus, DLD may affect not only school progress but also employment.

Whilst recent research indicates that the rate of employment in this group was similar to peers (Conti-Ramsden et al., 2018), it also reported lower levels of employment in terms of hours, contracts and employment type. However, there is virtually no research examining why this might be the case. In contrast there is already a growing evidence base surrounding Autism Spectrum Disorder (ASD) and Dyslexia in the workplace. Systematic reviews of factors affecting employment in ASD and Dyslexia (de Beer et al., 2014; Scott et al., 2019) have revealed barriers including the job application process itself.

Aims & methods: In this study we aimed to explore managers' awareness of DLD and their views on training, adjustments and feasibility when considering employing an individual with DLD. Specifically, we asked: 1) What awareness do managers have of DLD and how does this compare to awareness of ASD and other developmental disorders? 2) What is the extent of training on DLD and other developmental disorders in the workplace? 3) What barriers to employment are perceived to be most significant by managers? 4) What strategies do

managers report as currently in place to help support people with DLD? 5) What are perceived strengths of people with DLD according to managers?

Results: In total, 77 managers completed an anonymous online survey which was accessed via a social media link. Managers came from a wide variety of backgrounds with an equal split between public and private organisations, and across gender. The number of managers who had heard of DLD was lower than for the other disorders (ADHD, ASD, Dyslexia). This pattern was partly mirrored in the proportion of managers who felt they had received adequate training on communication difficulties. However, training on developmental disorders generally was reported as very scarce. A qualitative examination of barriers identified by managers included interviewing and CV submission, reading and following instructions, lack of clear guidelines around support needed, and financial restrictions in providing support.

Conclusions: These findings support existing literature and have implications for policy and practice – namely that young people with DLD may need to be proactive about disclosing their language needs, and that workplaces need increased basic training in DLD.

Introduction

Work and employment are an important way of participating in society, providing a structure for social interaction as well as economic security and independence. Long-term unemployment has been found to increase financial hardship, social isolation, and a sense of low self-esteem as well leading to poorer health outcomes and increased risk of suicide (Milner et al., 2013; Virtanen et al., 2005). Disability is associated with increased risk of unemployment (Emerson, 2007; Honey et al., 2011) and the Department for Work and Pensions (DWP) reported that 53.6% of working-age people with a disability were in employment compared to 81.7% of non-disabled peers (Powell, 2020). The UK Equality Act (2010) seeks to protect those with disabilities in the workplace from direct and indirect discrimination. Through the management of others, businesses are required to be informed about the implicit and explicit disadvantages which could adversely impact an employee with a disability and make reasonable adjustments. One disorder which may have an impact on employment is that of Developmental Language Disorder (DLD), yet awareness of this condition is generally low (Bishop, 2010). This paper aims to explore awareness of this condition, and the potential barriers to employment among general workplace managers.

Developmental Language Disorder

DLD is a relatively new term describing children who have "unexplained language problems" (Bishop, 2014; Bishop & CATALISE, 2017). Children with DLD have difficulties understanding and producing sentences, finding the right words, remembering complex instructions and using social language cues, to an extent which affects everyday functioning (Bishop et al., 2017). Prior to the introduction of this terminology, children with language difficulties that were unexplained by physical, cognitive or neurological impairment were referred to as having a Specific Language Impairment (SLI). However, following extensive

engagement with the speech and language community, and a Delphi consensus processes, DLD is now the preferred term for this cohort (Bishop et al., 2017). This change in terminology is also relevant when considering awareness of DLD in workplace settings, as well as employee self-identification for this cohort.

It has been estimated that around 7% of UK children have a Developmental Language Disorder that is severe enough to impact on their academic progress (Norbury et al., 2016; Tomblin et al., 1997). The evidence surrounding the longer-term persistence of language difficulties in this group (Botting, 2020) means that these figures can reasonably be extrapolated to an adult population. Recent research has suggested that word learning in adolescence often slows rather than showing catch-up (Rice, 2020), especially for girls. Importantly, McGregor and colleagues (2020) have recently shown that the language difficulties in adulthood are not just a consequence of these earlier problems, but that less efficient word learning skills are also evident in adults with DLD, who require more presentations of an item for learning to occur. This factor, among others, is likely to be relevant to the pattern of wider difficulties reported.

Furthermore, there is now an established body of research demonstrating that individuals with DLD experience these wider associated difficulties in adolescence and adulthood (Botting, 2020; Conti-Ramsden & Durkin, 2012; Conti-Ramsden et al., 2016). Persistent DLD has been shown to impact on academic attainment and levels of education and employment (Conti-Ramsden et al., 2018), as well as other wide-ranging difficulties including increased risk of psychological problems (Beitchman et al., 2001; Yew & O'Kearney, 2013) and social difficulties (Conti-Ramsden & Botting, 2004; Durkin et al., 2017).

The education status of those with DLD provides a useful backdrop when considering future employment outcomes. The challenges experienced by this group are not limited to their spoken language, but also affect written language and reading skills (Botting et al., 2006) which affect access and achievement in education. Studies show that those with language disorders perform less well on academic assessments taken at the end of formal education (Conti-Ramsden et al., 2009; Lindsay et al., 2010), a trend which persists to university degrees and vocational qualifications (Conti-Ramsden et al., 2018). In Canada, Johnson et al. (2010) reported that only 76% of study participants with DLD had completed high-school versus 92% of their typical matched peers, while in the UK Conti-Ramsden et al. (2016) reported that those who remained in education post-16 years of age, were likely to be either retaking previous exams or, were undertaking vocational qualifications (36/44, 82%). Nevertheless, the educational status of those with DLD appears to be following an upward trend (Conti-Ramsden et al., 2018). Earlier research undertaken with a DLD cohort from the 70s and 80s, reported that none of the participants achieved any formal academic qualifications from any stage of schooling (Clegg et al., 2005). This trajectory may have an impact on employment success as well as the types of employment available for people with DLD. For example, Naylor et al. (1994) demonstrated that acquiring sufficient literacy skills can act as a protective factor, helping to keep children in school for longer. Conversely, adolescents with DLD who have lasting effects of literacy difficulties often view education as a hindrance rather than a path to employment (Whitehouse et al., 2009).

Indeed, adults with DLD have been shown to experience continued difficulties with spoken language and functional literacy into adulthood (Botting, 2020) which may impact on successful employment. Difficulties in these areas might plausibly present barriers to employment, for example: keeping up with conversations in meetings, note taking, reading and writing written reports, following complex instructions and policies, accessing online

materials necessary for the role, and maintaining appropriate social relationships with colleagues. As highlighted by Scott et al. (2019), negative attitudes from colleagues or managers might also be present, and these may stem from lack of awareness and misconceptions. To date, this area has not been formally investigated for individuals with DLD. However, research does exist for similar neurodevelopmental disorders such as Autism and Dyslexia which will now be considered.

Barriers to employment for other lifelong developmental disorders: Autism and Dyslexia

Other individuals with lifelong disorders such as Autism and Dyslexia have also been found to experience less favourable employment outcomes than peers. Both Autism (Williams et al., 2008) and Dyslexia (Bishop & Snowling, 2004; Catts et al., 2005), whilst being separate disorders, have more overlap with DLD in terms of communication and processing difficulties, than other developmental disorders. They may therefore experience barriers in the workplace similar to those faced by individuals with DLD (de Beer et al., 2014; Chen et al., 2015; Nesbitt, 2000; Scott et al., 2019). A scoping review by Scott et al. (2019) considered the factors impacting on employment for people with Autism. They evaluated 36 employment programmes and concluded that workplace environments, the job application process, and following instructions at work were all key potential barriers to employment. Existing intervention studies were mainly impairment focused and while those participants showed significant improvement in targeted skills, these did not necessarily result in a change in employment status.

Interestingly, Ohl et al. (2017) found that a significant predictor of employment for those with Autism was disclosure of their diagnosis, which increased the likelihood of employment threefold. They speculate that this could be related to disclosure giving rise to workplace accommodations, although the study does not directly investigate causal relationships. In one

of the few studies to include workplace perspectives, Nicholas et al. (2018) explored confidence in existing employment support services for individuals with Autism in Canada. Organisations completed an online survey and service-users were interviewed. Supportive factors included assistance with CV writing and job searching online as well as information navigation schemes, pro-Autism attitudes, and employer/co-worker understanding about Autism (Nicholas et al., 2018). Unsurprisingly, organisations offering supportive cultures described a higher level of confidence in employing autistic people compared to the wider community. However, the service-users and their families reported a lower satisfaction level than the organisations regarding the support they had received, and felt their self-esteem, retainment of jobs and confidence in pursuing future roles were all affected by insufficient support. Autistic adults also rated their employers' attitudes towards Autism at interview stage as mixed. While the difference in data collection methods across the groups could have impacted responses, this mismatch between perceived provision and receipt of support is crucial to acknowledge when developing employment opportunities.

People with Dyslexia also experience challenges at work. As with DLD, Dyslexia is associated with difficulties in literacy acquisition, where phonological awareness and verbal processing speeds are implicated (Marshall et al.,2001), and many literacy difficulties are also underpinned by (sometimes unrecognised) spoken language problems (Myers & Botting, 2008). A systematic review by de Beer et al. (2014) highlighted several factors that make positive differences for people with Dyslexia at work. These included support from employers and colleagues, assistive technology, job autonomy and awareness of own strengths (de Beer et al., 2014; Nalavany et al., 2017). In addition, employer training and up to date manager knowledge has been highlighted as a priority for improving the employment experience of those with Dyslexia (Bell, 2010). Bartlett et al. (2000) and Morgan and Klein (2000) both underlined that individuals with Dyslexia offered a considerable amount of

creativity to their chosen career paths, highlighting the need to focus on strengths as well as challenges.

In sum, existing evidence describes a workplace attitude often driven by an impairment-based model for both Autism and Dyslexia, where the individual is expected to face and deal with the difficulties created by the disorder, rather than the workplace making adjustments. The development of attitudes in line with a social model of thinking in the workplace may therefore be needed for all developmental disorders (Bell, 2010; de Beer et al., 2014; Scott et al., 2019). Despite the fact that work is central to adult life, and the growing evidence that people with DLD experience issues wider than communication alone, there is a paucity of research regarding the experience of people with DLD in the workplace. In particular, no evidence exists regarding the awareness of DLD among general managers and existing workplace adjustments. Currently there are no published data on whether workplaces or managers have awareness of DLD. However, there is some preliminary research on employment in general for people with DLD, as follows.

Employment and DLD

Unlike for adults with Autism and Dyslexia, there is extremely limited literature regarding the employment pathways of young adults with DLD. As with educational achievement, the existing evidence suggests that the situation around employment for those with DLD is not straightforward. For example, Clegg et al. (2005) found that rates of employment for those with DLD were better than for autistic peers (70%) but that this declined over time with employment rates higher in research participants' early 20s than their mid-30s. The employment history of participants was also reported as 'unstable' and characterised by long periods of unemployment, so this decline might reflect that variability in occupational status. A trend for lower employment when compared to peers was also reported in the Canadian

longitudinal study by Johnson et al. (2010). More recent work from the Manchester Language Study (Conti-Ramsden et al., 2018) reported no significant difference between young adults with DLD and age-matched peers (AMP) in relation to numbers employed (66% for those with DLD and 73% for AMP) and employment was reported to be 'the most frequent main activity' of young adults with or without DLD (Conti-Ramsden et al., 2018). Furthermore, similarities were noted between groups regarding the number of hours worked per week in a main job, and job permanency. Nevertheless, there were also some important differences between the employment status of the DLD and AMP groups, with the former more often in part-time employment and on less secure (zero hours) contracts. Furthermore, using the Standard Occupational Classification System (SOCS) there were differences in the types of employment roles held, with the DLD group having fewer professional and managerial positions than AMPs. These findings corroborate earlier data which reported that those with DLD are more often employed in jobs which are lower status and require fewer skills, compared to their peers (Carroll & Dockrell, 2010; Clegg et al., 2005; Johnson et al., 2010). An additional study by Whitehouse et al. (2009) compared nineteen participants with DLD to a group of seven peers with Pragmatic Language Impairment (PLI). In this longitudinal study, those with DLD pursued professions with little emphasis on literacy in contrast to the PLI participants who often worked in more technical and skilled vocations.

Together, these findings raise questions about long term workplace commitment to people with communication difficulties, and about manager awareness of the needs and possible adjustments for adults with DLD. These workplace perspective issues have thus far never been explored in the literature. Interestingly, the Manchester Language Study noted that fewer people with DLD used a CV to apply for roles, or completed face-to-face interviews, and that only 15% of participants asked for special interview arrangements (Conti-Ramsden et al., 2018). This need for workplace adjustments is likely a reflection of a more general lack

of awareness of DLD among the general public (Dillenburger et al., 2013). A recent article by Isetti (2020) proposed a theoretical model outlining the costs and benefits of disclosing a communication difficulty to an employer. This included the influence of various workplace factors such as the job role and organisational policies. He concluded that whilst self-disclosure is a personal choice, more research is needed to determine which elements of communication difficulties might serve as a barrier to employment from the workplace perspective.

There is to our knowledge no current evidence base investigating potential barriers to employment for adults with DLD from a workplace perspective, and this study is the first to directly address manager awareness of these issues.

The present study

The evidence presented above indicates that a) DLD is one of the most prevalent developmental disorders; b) people with DLD may find employment more difficult than most people (albeit there has been improvement over the last decade); and c) that their profile of spoken and written language is likely to impact on their functioning in the workplace. Previous research has also identified workplace barriers and strengths for people with less prevalent, but more well-known disorders. Despite this, there has been no research thus far exploring what awareness and barriers workplace managers might have regarding DLD in the workplace. As well as providing necessary support to avoid discrimination, manager awareness may be important when considering the long-term support needed to ensure the successful sustained employment of people with DLD.

Specifically, we asked:

1. What awareness do managers have of DLD and how does this compare to awareness of ASD and other developmental disorders?

2. What is the extent of training on DLD and other developmental disorders in the workplace?
3. What essential qualities are managers looking for and what barriers to employment are perceived to be most significant by managers?
4. What strategies do managers report as currently in place to help support people with DLD?
5. What are perceived strengths of people with DLD from managers?

Method

Procedure and ethics

This study was approved by the [*redacted for anonymous review*] Research Ethics Committee. The survey was distributed publicly via a link on social media, between November 2018 and January 2019. The survey was hosted via Qualtrics and made available via various online social media sites including Twitter and Facebook using hashtags such as #business and #managers. The links were posted by authors on individual pages and via the university department accounts. Content was not specifically promoted using particular algorithms or promotional posts. Managers were given a descriptive summary of the project at the start of the survey and consent was obtained before allowing access to the questionnaire. All responses were completely anonymous.

Recruitment and participants

We recruited a convenience sample consisting of those who followed the link to Qualtrics from social media. Participation was anonymous and respondents were not incentivised to

take part in the questionnaire. One criterion for participation was that the participant had to formally submit the completed survey. Of the 119 participants who began the survey, 77 of these actively completed it. The other key eligibility criterion was that participants were currently managing in any sector which could include line management, training, hiring, and interviewing duties. Participants were asked to confirm that they were responsible for at least 2 of the above at the start of the survey. Of the 77 who submitted the survey, all but 3 confirmed they were line managers (42 for 1-5 people; 25 for 5-25 people; and 7 managed more than 25 people). The remaining 3 respondents were responsible for hiring and training new staff and all 3 had the term manager in their job title. As the survey was anonymous, it was not clear why some participants failed to complete it, and there was no clear pattern to withdrawal. The final participant pool characteristics are presented in Table 1.

As the survey was distributed online, respondents included were both national and international and came from a wide array of private, public professional and educational sectors (16 education; 13 unspecified private business; 12 information, communications and administrative; 12 financial sector; 6 retail or real estate; 6 unspecified public sector; 4 construction, transport or storage; 3 health and social work; 3 professional or scientific; 2 mining, energy or water). There was an equal split between public and private employers with an even distribution across gender. Age was measured in six categories in 10-year segments. Over 80% of participants were educated to undergraduate degree level or above. See Table 1 for details.

[Table 1 about here]

Materials

The survey consisted of 31 questions and was developed to gather information about managers' awareness of DLD and other developmental disorders. The survey (including

instructions sheet) is provided in Supplementary Materials. Participants were initially asked 10 demographic questions including information about their place of work including size of the business or employer, type of employment and how long they had been employed in that position. The survey included items regarding manager awareness of DLD and other developmental disorders. It then asked participants to reflect on the potential strengths and needs of people with DLD, both before and after being provided with a definition of DLD (see Fig 1). Finally, the questionnaire asked about barriers to employment and the provision of training. The questions presented in the survey had varying response options including ranking statements, 0 to 100 scales, and multiple-choice formats. Questions were based on a previous student pilot project, and on existing literature from other developmental disorders. The current survey was also run past 3 general managers to test for readability, length and acceptability. However, no formal pilot was undertaken. Additional open questions were used, allowing managers to elaborate on their responses and broaden the presented options. The survey took around 20 minutes to complete.

[Fig 1 about here]

Analysis

Quantitative survey data were analysed using descriptive methods. Where possible, data were statistically analysed with non-parametric tests of association and difference using SPSS v.25. Non-parametric analyses were chosen due to the ordinal data and non-normal distributions in much of the data. Where answers were 'ranked' items, statistical tests were not appropriate. Note that not all questions in the survey were analysed due to missing data. Additionally, a preliminary qualitative analysis was conducted on the managers' views of strengths of people with DLD in the workplace. For this analysis, data were transcribed and

then described. However, a full qualitative analysis was not attempted here due to the limited data set.

Results

1) Awareness of developmental disorders

The number of managers who reported being aware of DLD (23/77; 29.9%) and SLI (21/77; 23%) was lower than awareness of the other developmental disorders (*Friedman* $\chi^2(4)=206.0$, $p<0.001$). Responses of "not sure" were also higher for DLD (7/77; 9.1%) and SLI (6/77; 7.8%). For all other developmental disorders asked about in the survey, awareness was 77/77 (100%)[1]. For those who had heard of *either* DLD or SLI, 9 people first heard about it through training at work, 4 people knew someone with DLD from school or personal life, and 3 people knew someone with DLD in their professional life. Thirteen people chose 'other', and 10 of these managers listed sources including previous non-work training (n=2) a relative working in speech and language therapy or special education (n=3), or hearing the term in the media, or on the internet (n=5).

An exact sign test revealed that the number of participants who identified as working with someone with DLD post-definition (22/75, 29.3%) was significantly higher ($z= 6.710$, $p=0.001$) than before being given a definition (5/77, 6.5%). This change largely arose from those who were "not sure" changing to "yes". Fig.2 outlines the full responses.

[Fig.2 about here]

[1] 15/77 had heard of both DLD and SLI. In total, 29/77 (38%) managers had heard of *either* DLD or SLI.

2) Reported training on developmental disorders in the workplace

Table 2 outlines training received across the sample. In total 71 managers responded. All reported training levels were relatively low, with the highest amount of training in Dyslexia (24/71, 33%) compared to 20/71 (28%) for ASD and 19/71 (27%) for ADHD. Only 9/71 (13%) managers had received training in DLD (*Cochran's Q* (3)=21.5, $p<0.001$).

[Table 2 about here]

Of the 9 managers who had received training on DLD, 2/9 (22%) also felt their training was inadequate. However, this was not out of line with other disorders: For Dyslexia, 5/24 (21%); for ASD, 4/20 (20%); and for ADHD 5/19 (26%) felt that training was inadequate. Due to small numbers these figures were not statistically analysed.

[Table 3 about here]

3) Essential employee qualities and potential barriers to employment

Managers were asked to rank 4 potential qualities of employees as 1 (essential) to 4 (not important at all). Five managers did not respond to this question. Fig 3 shows the frequency with which each option was selected as 'essential', and indicates that being able to articulate ideas (n=28/72; 38.8%), and building good rapport and relationships (n=28/72; 38.8%) were most often ranked in first place. Having qualifications (n=9/72; 12.5%) or high levels of concentration (n=8/72; 9.7%) were less often rated as essential qualities. Because of the ranking method used, data was not analysed statistically.

[Fig 3 about here]

We asked about barriers in two ways: person-based challenges and managerial challenges. Managers were asked to first identify possible person-based barriers out of a list of six. In total 74 managers answered this item with a significantly different pattern across options

(*Cochran's Q* (5) =106.53, $p<0.001$). Fig 4 shows the data. The top three barriers identified by managers were interviewing (65/74, 87.8%; significantly more frequent than all other options; all *Dunn's p*s<0.001), reading and understanding instructions (35/74, 47.3%; significantly more frequent than job requirements, $p=0.001$; and CV $p=0.032$) and the ability to carry out the requirements of the role (30/74, 40.5% which was indicated significantly more often than time management). Following the barriers above, others identified were personal relationships (23/74, 31.1%), being tasked to fill out a CV or application form (17/74, 23%) and lastly time management and organisation skills (11/74, 14.9%). These were not significantly different from one another (all *Dunn's p* values>0.6).

For the job requirements option, respondents were making a judgement dependent on their own workplace. However, a few managers optionally left descriptions of what requirements these might be, and most were associated with speed and pressure. The comments included "client facing interactions on complex topics with tight deadlines" (Participant ID 4); "reading training materials and guides" (Participant ID 44); "being the go-to person in the group for a particular process or task" (Participant ID 47); "ability to interpret a task in a pressure situation" (Participant ID 58) and "pitching for funding" (Participant ID 65).

[Fig 4 about here]

Next potential barriers from an organizational perspective were ranked by managers from 1 to 7 with lower scores indicating the most salient barriers (e.g., 1 is the biggest barrier to employment). Table 5 shows that the item ranked as the most important barrier was a lack of awareness of strengths of those with DLD (mean rank 2.97(1.87)), followed by lack of staff awareness (3.32(1.78)). The least important barriers were awareness of external organisations which could provide support (4.82(1.81)) and financial barriers (4.81(1.96)). Because of the large number of sectors represented by participants, small group numbers, and the ranking

method used, it was not possible to statistically analyse the data or determine whether perceived barriers differed across sectors.

[Table 5 about here]

4) Strategies currently in place to support people with DLD

Managers were asked to indicate which strategies were in place to support people with DLD. The most identified option was "no known strategies in place" with 41/77 participants identifying this option (53.2%) (*Cochran's Q* (7) = 86.97, $p<0.001$). Support plans identified included opportunities to work from home when required (19/77, 24.7%), staff training to raise awareness (10/77, 13.0%), using a personal mentor (10/77, 13.0%), and use of visual support tools (10/77, 13.0%), all of which were identified significantly less often in comparison to 'no strategy' (all *Dunn's* $p<0.001$). None of the other strategy frequencies were significantly different from one another. Three participants ticked 'other' and these all referred to commitment from senior management and awareness of diversity. See table 6 for a full list of current strategies in place. We then asked managers how feasible each of these would be to put in place. As can be seen from table 6, most strategies were felt to be feasible by the majority of managers.

[Table 6 about here]

5) Strengths of people with DLD as perceived by managers

Managers were asked to comment on strengths they felt characterized people with DLD in the workplace. This was an open-text question, and so responses were submitted to a preliminary descriptive analysis. Table 7 shows the responses. A strong work ethic was described by 5 of the 18 participants using language such as 'hard working', 'focused', and

'wanting to get things done properly'. Ten participants described personality traits as strengths in the workplace. This concept was then separated into two potential content groups; strength of character and compassion. Seven participants identified strength of character using terms such as 'resilience' and 'determination'. Three participants labelled strengths as 'empathy' and 'compassion'.

[Table 7 about here]

Discussion

This study is the first to our knowledge that reports on the awareness of DLD amongst workplace managers. Only around a quarter of managers had heard of the term, and importantly recognition of DLD rose significantly following a provided definition. Awareness of DLD was in sharp contrast to awareness of other disorders with similar or lower prevalence and long-term effects, which were recognised by all respondents. Despite this, managers reported low occurrence and low satisfaction with training on developmental disorders across the board.

For managers who were aware of DLD, some individual and workplace barriers to employment were noted. The most salient issues for managers were interviewing and job skills for the individual and lack of awareness and training at the corporate level. Nevertheless, some managers did report having some strategies in place which could support people with DLD in the workplace, which is a positive finding. Several also commented on the potential strengths of someone with DLD in the workplace, and these fell into the two broad themes of work ethic and personality.

Conti-Ramsden et al. report that education and employment in young people are important measures of how well individuals are "prepared for the rest of their lives" (Conti-Ramsden et al., 2018, p.250). The International Classification of Functioning, Disability and Health framework (ICF) (WHO, 2001) can be used to position employers and managers as important environmental factors that are likely to have an impact on employment outcomes (Erickson et al., 2014). By considering manager awareness, this research begins to examine the landscape into which people with DLD are entering the workplace.

Awareness of DLD

It is perhaps unsurprising that awareness of DLD and SLI (29.9% and 23% respectively) was lower than for ASD (100%). It was also apparent that some participants were unsure of whether they had heard of DLD or SLI (9.1% and 7.8%). This uncertainty was not found in relation to ASD or any of the other developmental disorders asked about in the survey. On the other hand, the level of awareness might also seem higher than expected from general awareness reported at a clinical level and given recent changes in terminology (Bishop et al., 2017). Indeed, while respondents were managers in a wide range of industry sectors, it is worth noting that the dissemination of this survey was via the social media accounts of a large speech and language training centre, and this may have led to recruitment of a sample which was particularly interested or engaged in language and communication issues. That is, the lack of awareness reported here is likely to be an underestimate of the wider pattern.

As discussed above, DLD is a relatively new term which is not yet used consistently across speech and language therapy services (Bishop, 2017). This is likely to contribute to lower levels of awareness and greater uncertainty. However, awareness of the term SLI (23%) was marginally lower than DLD (29.9%), even though SLI has been used for many years to refer to a cohort of people with language difficulties. This suggests that the shift in terminology

does not account for low awareness when compared to ASD and other developmental disorders. In fact, given the relative recency of the term DLD, our results may be an early indication of a greater and more broadly spread uptake of this terminology.

As reported in the introduction, DLD is estimated to occur in approximately 7-9% of children (Norbury et al., 2016; Tomblin et al.,1997). Comparatively, Autism is estimated to have a prevalence of 1.1% of the total population (NHS Digital, 2012), but despite this difference, all managers had heard of Autism. The fact that managers are aware of other disorders and not DLD has implications for the workplace and employment success.

Self-disclosure

A related factor may be the extent to which people with DLD self-identify with this term and use it to describe themselves. For example, recent research advocates for the use of the term "autistic" to identify and highlight neurodiversity strengths (as well as challenges) that people with ASD experience (Kenny et al., 2016). According to Ohl et al. (2017), disclosure of Autism is linked to higher employment rates. Thus, declaring a developmental disorder at application may mean that workplaces are more proactive in making adjustments at interview or during employment. Moreover, the recent neurodiversity framework has emphasised 'difference' over 'disorder' in Autism (Baron-Cohen, 2017); and autistic people often consider their Autism to be a central component of personal identity (Kenny et al., 2016).

Positive self-identification of this kind is rarely reported of people with DLD, and doing so might support their employment experience. However, Isetti's recent model (2020) suggests that there are both costs and benefits of disclosing a communication difficulty in the workplace. However, it is important to note that for DLD, the general lack of awareness adds a layer of complexity to the decisions around self-disclosure and effective support strategies. Our findings start to give some indication of areas which would and would not be seen as

barriers for employers, which may help to move towards more positive employment outcomes for people with DLD. Nevertheless, further research should seek to examine the extent to which people with DLD identify with the terminology and how they manage their diagnosis, especially in the context of education and work. It should be noted that it is not the responsibility of those with DLD to educate employers. In fact, managers may have an important role to play in facilitating disclosure of a diagnosis by providing adequate support infrastructure. Dyslexia is an example of a developmental learning disorder where awareness and support are at a sufficient level to actively encourage disclosure and support within the workplace (Moody, 2015). Our data suggest that this would not be the case for someone entering the workplace with a diagnosis of DLD.

Barriers to employment

In line with low awareness of DLD among many managers, lack of awareness was perceived by managers who did know about DLD to be the most significant barrier to employment. Furthermore, significantly more managers in our sample recognised that they worked with someone who had DLD following a brief description. This finding suggests that awareness raising is needed initially at a very basic level.

Conversely, financial considerations were not perceived to be a barrier to employment for people with DLD. We did not collect qualitative information to elucidate this further. However, this finding may be because managers had low awareness of DLD related needs and thus could not fully consider financial implications of employing people with DLD. It could also indicate that the costs of education, training, and support for employees with DLD were not considered to be an undue financial concern. While in UK legislation it is against the law for an employer to discriminate against an employee because of a disability (The UK

Equality Act, 2010), it is nonetheless reassuring that in an anonymous survey, financial barriers were deprioritised.

It should be noted that although no obvious patterns regarding barriers were apparent across sectors, the current study was unable to investigate this in a valid way due to the way in which work sector information was asked, and because of the small numbers of participants from some sectors. Future studies should aim to investigate whether perceived barriers differ across different sectors. Furthermore, although we have collected some ad hoc qualitative information about the concerns of managers regarding employees carrying out job requirements, a systematic qualitative study is needed to fully understand this barrier.

Strengths of people with DLD in the workplace

Perceived strengths of employees with DLD (from those managers who were aware of the disorder) fell into two categories: work ethic and personality. Work ethic was a clear theme with descriptions such as, “works hard”, “hard working” and “thorough”. These are qualities to be celebrated and they complement Conti-Ramsden and Durkin’s (2012) findings of low truancy levels in school amongst this population.

Recurring terms relating to personality included “resilience” and “determination”, which give a strong sense of character. Qualities of “compassion” and “empathy” build a positive picture of this population that is appealing to work alongside. If these strengths can be promoted and harnessed within the workplace, this could yield a number of benefits for individuals with DLD. One benefit could be the increase of individuals’ self-efficacy. Self-efficacy is important as it has been used as a measure for personal success and defined as a resource in the workplace (Leather et al., 2011; Loeb et al., 2016), as well as mediating depression in DLD (Botting et al., 2016). Individuals with the associated disorder Dyslexia, who had negative emotions regarding their diagnosis, were also found to have lower self-efficacy in a

study by Nalavany et al. (2017). Another benefit could be the encouragement of self-identification at the interview stage, currently found to be at 15% (Conti-Ramsden et al., 2018). This would allow for employers to make reasonable adjustments, for example with CVs and face to face interviews. Fewer individuals with DLD engage well with these aspects of employment compared to peers (Conti-Ramsden et al., 2018). These adjustments may ultimately also increase the likelihood of employment (Ohl et al., 2017), however, to date there is no existing literature on how people with DLD describe themselves and their strengths. A wider knowledge of these strengths alongside much needed awareness raising could also minimise the above barriers to employment.

Limitations

It should be noted that these survey results are representative of a self-selecting sample who were likely to have become aware of the survey via the social media sampling approach. The status of respondents as managers was only as reported by the participants, although several questions were asked to confirm that this meant line managing and/or hiring individuals. It is also possible that awareness of DLD in this sample is inflated due to overlapping areas of interest for people following the departmental Twitter account. Indeed, the survey has been completed by more managers in educational settings than might be expected from a representative sample. However, this makes it even more notable that awareness of DLD is significantly lower than for other disorders. A similar sampling bias may have arisen in terms of geographical area of participants, who were based mostly in the south east of England. Although no specific algorithms were used, the university is based in this region, and may have increased social media reach for people who are nearer geographically. It is important that future studies ensure a more even spread of respondents so that other regions of the UK are represented.

Similarly, due to the limited number of managers in our sample with experience of working with someone who has DLD (24/77), the qualitative analysis of strengths is clearly based on a small sample. Extending the survey to include more participants would doubtless provide richer data about DLD in the workplace. It would also be interesting to know which jobs were held by the individuals with DLD who were identified by our participant managers. There were a number of respondents who did not complete the whole survey. Following our ethics conditions, we did not include their data here. However, completion of the survey may not have been at random, and those who were more engaged and who found the content relevant to their experience as managers may have completed the survey at higher rates.

We were interested in gaining the views of managers about employing people with DLD. However, future research also needs to ask adults with DLD themselves about workplace experiences, including barriers and facilitators. Similar research in Autism has shown interesting and important mismatches between manager and employee viewpoints (Nicholas et al., 2018), emphasising the need to gather data from all sources.

Finally, although we do report information about accommodations already being made, and a broad question on what employers are looking for in a new employee, it would have been useful to know what skills managers felt were needed in each particular employment instance, and in relation to difficulties experienced in DLD. This type of data is not well suited to anonymous survey methodology, and in future in depth interviews would be a useful next step.

Clinical Implications and conclusions

As mentioned earlier, the ICF (WHO, 2001), provides a social model of disability, which can also be used to contextualise employers as an environmental factor that can facilitate or hinder employment outcomes for those with disabilities such as DLD (Erickson et al., 2014).

This speaks to the key theme of awareness emerging from this research, both in relation to low reported awareness among managers themselves, but also (and perhaps more importantly), the finding that lack of staff awareness was recognised by managers as a possible barrier to employment for those with DLD. Thus, a significant real-world implication is that more needs to be done in the workplace to increase managers' basic awareness of DLD. This lack of awareness was apparent across all sectors and sizes of organisation. One possible approach would be to focus on training programmes. Alongside this, public health and media campaigns, as well as self-declaration by those with DLD may also help to improve awareness and employment outcomes. Recently a number of initiatives have been successfully launched which aim to facilitate this process, for example the Raising Awareness of Developmental Language Disorder (RADLD, UK based: https://radld.org); DLD & Me (US based: https://dldandme.org); The DLD Project (Australia based: https://thedldproject.com); and Engage with DLD (E-DLD: https://www.engage-dld.com). The discussion above has touched on some of the reasons why awareness of DLD is below that of other developmental disorders. Based on the results reported in this paper and the findings reported by Ohl et al. (2017), further research into self-identification and self-advertising for those with DLD could be a valuable avenue for investigation.

References

Baron-Cohen, S. (2017). Editorial Perspective: Neurodiversity–a revolutionary concept for Autism and psychiatry. *Journal of Child Psychology and Psychiatry*, *58*(6), 744-747. https://doi.org/10.1111/jcpp.12703

Bartlett, D., Moody, S., & Kindersley, K. (2000). *Dyslexia in the Workplace*. Wiley-Blackwell.

Beitchman, J.H., Wilson, B., Johnson, C.J., Atkinson, L., Young, A., Adlaf, E., Escobar, M. and Douglas, L. (2001). Fourteen-year follow-up of speech/language-impaired and control children: psychiatric outcome. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*, 75-82. https://doi.org/10.1097/00004583-200101000-00019

Bishop, D. V. M., & Snowling, M. J. (2004). Developmental Dyslexia and specific language impairment: Same or different? *Psychological Bulletin, 130*(6), 858-886. https://doi.org/10.1037/0033-2909.130.6.858 Bishop, D. V. M. (2010). Which Neurodevelopmental Disorders Get Researched and Why? *PLoS One, 5*(11), E15112. https://doi.org/10.1371/journal.pone.0015112

Bishop, D.V. (2014). Ten questions about terminology for children with unexplained language problems. *International Journal of Language & Communication Disorders, 49*(4), 381-415. https://doi.org/10.1111/1460-6984.12101

Bishop D. (2017). Why is it so hard to reach agreement on terminology? The case of developmental language disorder (DLD). *International Journal of Language & Communication Disorders*, *52*(6), 671-680. http://doi.org/10.1111/1460-6984.12335.

Bishop, D. V. M., Snowling, M. J., Thompson, P. A., Greenhalgh, T., Adams, C., Archibald, L., and the CATALISE-2 consortium (2017). Phase 2 of CATALISE: A multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *Journal of Child Psychology and Psychiatry, 58*(10), 1068-1080. https://doi.org/10.1111/jcpp.12721

Botting, N., Simkin, Z., & Conti-Ramsden, G. (2006). Associated reading skills in children with a history of specific language impairment (SLI). *Reading and writing*, *19*(1), 77-98. http://dx.doi.org/10.1007/s11145-005-4322-4

Botting, N., Durkin, K., Toseeb, U., Pickles, A., & Conti-Ramsden, G. (2016). Emotional health, support, and self-efficacy in young adults with a history of language impairment. *British Journal of Developmental Psychology*, *34*(4), 538-554. https://doi.org/10.1111/bjdp.12148

Botting, N. (2020). Language, literacy and cognitive skills of young adults with developmental language disorder (DLD). *International Journal of Language & Communication Disorders. 55*, 255-265. http://doi.org/10.1111/1460-6984.12518

Carroll, C. & Dockrell, J. (2010). Leaving special school: Post-16 outcomes for young adults with specific language impairment, *European Journal of Special Needs Education*, *25*(2), 131-147. http://doi.org/10.1080/08856251003658660

Catts, H. W., Adlof, S. M., Hogan, T. P., & Weismer, S. E. (2005). Are specific language impairment and Dyslexia distinct disorders? *Journal of Speech Language and Hearing Research, 48*(6), 1378-1396. https://doi.org/10.1044/1092-4388(2005/096)

Chen, J. L., Leader, G., Sung, C., & Leahy, M. (2015). Trends in employment for individuals with Autism spectrum disorder: A review of the research literature. *Review Journal of Autism and Developmental Disorders, 2*(2), 115-127. http://doi.org/10.1007/s40489-014-0041-6

Clegg, J., Hollis, C., Mawhood, L. & Rutter, M. (2005). Developmental language disorders – a follow-up in later adult life. Cognitive, language and psychosocial outcomes, *Journal of Child Psychology and Psychiatry, 46*(2), 128-149. https://doi.org/10.1111/j.1469-7610.2004.00342.x

Conti-Ramsden, G., & Botting, N. (2004). Social Difficulties and Victimization in Children with SLI at 11 Years of Age. *Journal of Speech, Language, and Hearing Research, 47*(1), 145-16. http://doi.org/10.1044/1092-4388(2004/013)

Conti-Ramsden, G., Durkin, K., Simkin, Z., & Knox, E. (2009). Specific language impairment and school outcomes: Identifying and explaining variability at the end of compulsory education. *International journal of language & communication disorders, 44*(1), 15-35. http://doi.org/10.1080/13682820801921601

Conti-Ramsden, G., & Durkin, K. (2012). Postschool educational and employment experiences of young people with specific language impairment, *Language, speech, and hearing services in schools, 43*(4), 507-520. http://doi.org/10.1044/0161-1461(2012/11-0067)

Conti-Ramsden, G., Durkin, K., Mok, P.L., Toseeb, U., & Botting, N. (2016). Health, employment and relationships: Correlates of personal wellbeing in young adults with and without a history of childhood language impairment. *Social science & medicine, 160,* 20-28. https://doi.org/10.1016/j.socscimed.2016.05.014

Conti-Ramsden, G., Durkin, K., Toseeb, U., Botting, N., & Pickles, A. (2018). Education and employment outcomes of young adults with a history of developmental language disorder. *International journal of language & communication disorders, 53*(2), 237-255. https://doi.org/10.1111/1460-6984.12338

de Beer, J., Engels, J., Heerkens, Y., & Van der Klink, (2014). Factors influencing work participation of adults with developmental Dyslexia: a systematic review, *BMC Public Health*, *14*(1), 1-35. http://doi.org/10.1186/1471-2458-14-77

De Kok, J., & Uhlaner, L. (2001). Organization Context and Human Resource Management in Small Firm. *Small Business Economics*, *17*(4), 273-91. doi: 10.1023/A:1012238224409

Dillenburger, K., Jordan, J. A., McKerr, L., Devine, P., & Keenan, M. (2013). Awareness and knowledge of Autism and Autism interventions: A general population survey. *Research in Autism Spectrum Disorders, 7*(12), 1558-1567. https://doi.org/10.1016/j.rasd.2013.09.004

Durkin, K., Toseeb, U., Botting, N., Pickles, A., & Conti-Ramsden, G. (2017). Social Confidence in Early Adulthood Among Young People With and Without a History of Language Impairment. *Journal of Speech, Language, and Hearing Research*, *60*(6), 1635-1647. https://doi.org/10.1044/2017_jslhr-l-16-0256

Emerson, E., (2007). Poverty and people with intellectual disabilities. *Mental Retardation and Developmental Disabilities Research Reviews*, *13*, 107-113. https://doi.org/10.1002/mrdd.20144

Erickson, W.A., von Schrader, S., Bruyère, S.M. & VanLooy, S.A. (2014). The Employment Environment: Employer Perspectives, Policies, and Practices Regarding the

Employment of Persons With Disabilities. *Rehabilitation Counseling Bulletin, 57*(4), 195-208. https://doi.org/10.1177/0034355213509841

Honey, A., Emerson, E. & Llewellyn, G. (2011). The mental health of young people with disabilities: impact of social conditions. *Social Psychiatry & Psychiatric Epidemiology, 46*(1). https://doi.org/10.1007/s00127-009-0161-y

Isetti, D. (2020). Disclosure of a Communication Disorder During a Job Interview: A Theoretical Model. *Journal of Communication Disorders, 87, 106038.* https://0-doi-org.wam.city.ac.uk/10.1016/j.jcomdis.2020.106038

Johnson, C.J., Beitchman, J.H. & Brownlie, E.B. (2010). Twenty-year follow-up of children with and without speech-language impairments: family, educational, occupational, and quality of life outcomes. *American Journal of Speech-Language Pathology, 19*(1), 51-65. https://doi.org/10.1044/1058-0360(2009/08-0083)

Kenny, L., Hattersley, C., Molins, B., Buckley, C., Povey, C., & Pellicano, E. (2016). Which terms should be used to describe Autism? Perspectives from the UK Autism community. *Autism, 20*(4), 442-462. https://doi.org/10.1177/1362361315588200

Leather, C., Hogh, H., Seiss, E., & Everatt, J. (2011). Cognitive functioning and work success in adults with Dyslexia. *Dyslexia, 17*, 327-338. https://doi.org/10.1002/dys.441

Lindsay, G., Dockrell, J., & Palikara, O. (2010). Self-esteem of adolescents with specific language impairment as they move from compulsory education. *International Journal of Language & Communication Disorders, 45*(5), 561-571. https://doi.org/10.3109/13682820903324910

Loeb, C., Stempel, C., & Isaksson, K. (2016). Social and emotional self-efficacy at work. *Scandinavian Journal of Psychology, 57*, 152-161. https://doi.org/10.1111/sjop.12274

Marshall, C. M., Snowling, M. J., & Bailey, P. J. (2001). Rapid auditory processing and phonological ability in normal readers and readers with Dyslexia. *Journal of Speech, Language, and Hearing Research, 44*(4), 925-940. https://doi.org/10.1044/1092-4388(2001/073)

McGregor, K. K., Arbisi-Kelm, T., Eden, N., & Oleson, J. (2020). The word learning profile of adults with developmental language disorder. *Autism & Developmental Language Impairments*, *5*, 2396941519899311. https://doi.org/10.1177/2396941519899311

Milner, A., Page, A., & LaMontagne, A.D. (2013). Long-Term Unemployment and Suicide: A Systematic Review and Meta-Analysis. *PLOS ONE, 8*(1): e51333. https://doi.org/10.1371/journal.pone.0051333

Moody, S. (2015). DYSLEXIA, DYSPRAXIA and ADHD in EMPLOYMENT: A View from the United Kingdom. *Career Planning & Adult Development Journal*, *31*(4), 140-152. doi: https://dx.doi.org/10.3399%2Fbjgp14X679859

Myers, L. & Botting, N. (2008). Literacy in the mainstream inner-city school: Its relationship to spoken language. *Child Language Teaching and Therapy*, *24*(1), 95-114. https://doi.org/10.1177/0265659007084570

Nalavany, B.A., Logan, J.M. & Carawan, L.W. (2017). The relationship between emotional experience with Dyslexia and work self-efficacy among adults with Dyslexia. *Dyslexia, 24*, 17-32. https://doi.org/10.1002/dys.1575

Naylor, M. W., Staskowski, M., Kenney, M. C. & King, C. A. (1994). Language disorders and learning disabilities in school-refusing adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*(9), 1331-1337. https://doi.org/10.1097/00004583-199411000-00016

Nesbitt, S. (2000) An evaluation of multi-agency service provision for children with autistic spectrum disorders. *The British Journal of Development Disabilities, 46*(90), 43-50. https://doi.org/10.1179/096979500799155757

NHS Digital (2012). Estimating the prevalence of Autism spectrum conditions in adults: extending the 2007 Adult Psychiatric Morbidity Survey. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/estimating-the-prevalence-of-Autism-spectrum-conditions-in-adults/estimating-the-prevalence-of-Autism-spectrum-conditions-in-adults-extending-the-2007-adult-psychiatric-morbidity-survey (Accessed 28 May 2019)

Nicholas, D. B., Zwaigenbaum, L., Zwicker, J., Clarke, M. E., Lamsal, R., Stoddart, K. P., ... & Lowe, K. (2018). Evaluation of employment-support services for adults with Autism spectrum disorder. *Autism*, *22*(6), 693-702. https://doi.org/10.1177/1362361317702507

Norbury, C.F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G. & Pickles, A. (2016). The impact of nonverbal ability on prevalence and clinical presentation of language disorder: evidence from a population study. *Journal of Child Psychology and Psychiatry*, *57*(11), 1247-1257. https://doi.org/10.1111/jcpp.12573

Ohl, A., Grice Sheff, M., Small, S., Nguyen, J., Paskor, K. & Zanjirian, A. (2017). Predictors of employment status among adults with Autism Spectrum Disorder. *Work, 56*(2), 345-355. https://doi.org/10.3233/wor-172492

Pollak, D. (2003). The Dyslexic Adult in a Non-dyslexic World by Ellen Morgan & Cynthia Klein, 2000, London: Whurr, 2000, 219 pages + xvi, ISBN 1 86156 207 1. *Dyslexia*, 9: 188-191. https://doi.org/10.1002/dys.252

Powell, A. (2020). Disabled People in Employment. *Briefing paper, 7540, House of Commons Library*. https://researchbriefings.files.parliament.uk/documents/CBP-7540/CBP-7540.pdf

Rice, M. L. (2020). Clinical lessons from studies of children with specific language impairment. *Perspectives of the ASHA Special Interest Groups*, *5*(1), 12-29. https://doi.org/10.1044/2019_persp-19-00011

Scott, M., Milbourn, B., Falkmer, M., Black, M., Bolte, S., Halladay, A., Lerner, M., Taylor, J.L. & Girdler, S. (2019). Factors impacting employment for people with Autism spectrum disorder: A scoping review. *Autism, 23*(4), 869-901. doi: 1362361318787789.

The Equality Act (2010) Available at: www.legislation.gov.uk/ukpga/2010/15/contents (Accessed: 23 March 2019).

Tomblin J.B., Records N.L., Buckwalter P., Zhang X., Smith E. & O'Brien M. (1997). Prevalence of specific language impairment in kindergarten children. *Journal of Speech, Language and Hearing Research, 40*(6), 1245-1260. https://doi.org/10.1044/jslhr.4006.1245

Virtanen, M., Kivimäki, M., Joensuu, M., Virtanen, P., Elovainio, M. & Vahtera, J. (2005). Temporary employment and health: a review. *International Journal of Epidemiology*, *34*(3), 610–622. https://doi.org/10.1093/ije/dyi024

Whitehouse, A. J., Line, E. A., Watt, H. J., & Bishop, D. V. (2009). Qualitative aspects of developmental language impairment relate to language and literacy outcome in adulthood. *International Journal of Language & Communication Disorders*, *44*(4), 489-510. https://doi.org/10.1080/13682820802708080

Williams, D., Botting, N., & Boucher, J. (2008). Language in Autism and specific language impairment: Where are the links?. *Psychological bulletin*, *134*(6), 944. https://doi.org/10.1037/a0013743

World Health Organisation (WHO) (2001), *International Classification of Functioning, Disability and Health (ICF).* Available at: http://www.who.int/classifications/icf/en/ (Accessed 13 April 2018).

Yew, S.G.K. & O'Kearney, R. (2013). Emotional and behavioural outcomes later in childhood and adolescence for children with specific language impairments: meta-analyses of controlled prospective studies. *Journal of Child Psychology and Psychiatry*, *54*(5), 516-524. https://doi.org/10.1111/jcpp.12009

Table 1: Participant demographics

Characteristics	Total sample n=77 *n (%)*
Gender	77
Female	39 (50.6)
Male	38 (49.4)
Age (categories)	*77*
18-25 years	0 (0)
26-35 years	35 (45.5)
36-45 years	25 (32.5)
46-55 years	8 (10.1)
56-65 years	7 (9.1)
Over 65 years	2 (2.3)
Highest level of education	77
GCSE, GCE, O levels etc	4 (5.2)
Vocational qualification (diploma, certificate, BTEC)	3 (3.9)
A-levels	3 (3.9)
Undergraduate degree	26 (33.8)
Postgraduate degree	40 (52)
PhD/Doctoral	1 (1.2)
Where are you based?	77
East of England	8 (10.4)
Ireland	1 (1.3)
Northeast	2 (1.3)
Northwest	3 (1.3)
Other country	12 (15.6)
Southeast	46 (60)
Southwest	8 (10.4)

Fig.1: Definition of DLD given to participants.

DEFINITION

DLD can be described as a persistent developmental language and communication need that cannot be explained by an obvious cause such as being deaf or having an intellectual disability or having English as a second language. The challenges might include:

Having trouble understanding instructions

Finding conversation difficult

Picking the wrong word

Having a limited vocabulary

Needing extra help and time to process what someone has said or written

DLD affects around 7% of all people and is a lifelong disorder. It used to be called Specific Language Impairment (SLI).

Fig.2: Managers' known experience of working with someone with DLD pre- and post-definition.

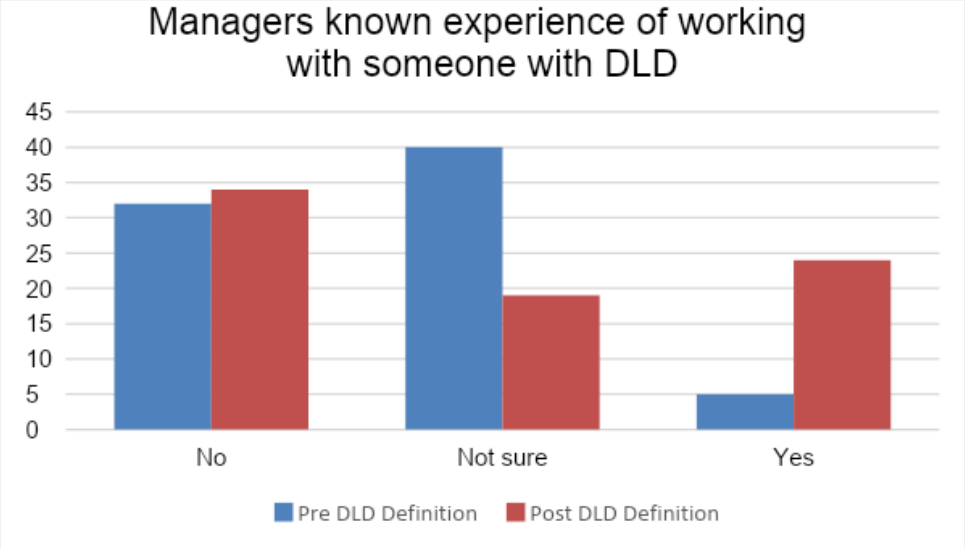

Table 2: The number of participants who had received training across disorders.

Dyslexia training	DLD training	ASD training	ADHD training
24 (33%)	9 (12%)	20 (28%)	19 (27%)

Table 3: Manager perception of training.

Adequate training	Dyslexia	DLD	ASD	ADHD
Yes	19 (25%)	7 (9%)	16 (21%)	14 (18%)
No	52 (67%)	64 (83%)	55 (71%)	57 (74%)
No response	6 (8%)	6 (8%)	6 (8%)	6 (8%)

Fig 3: Frequency with which employee qualities were ranked as 1 (essential).

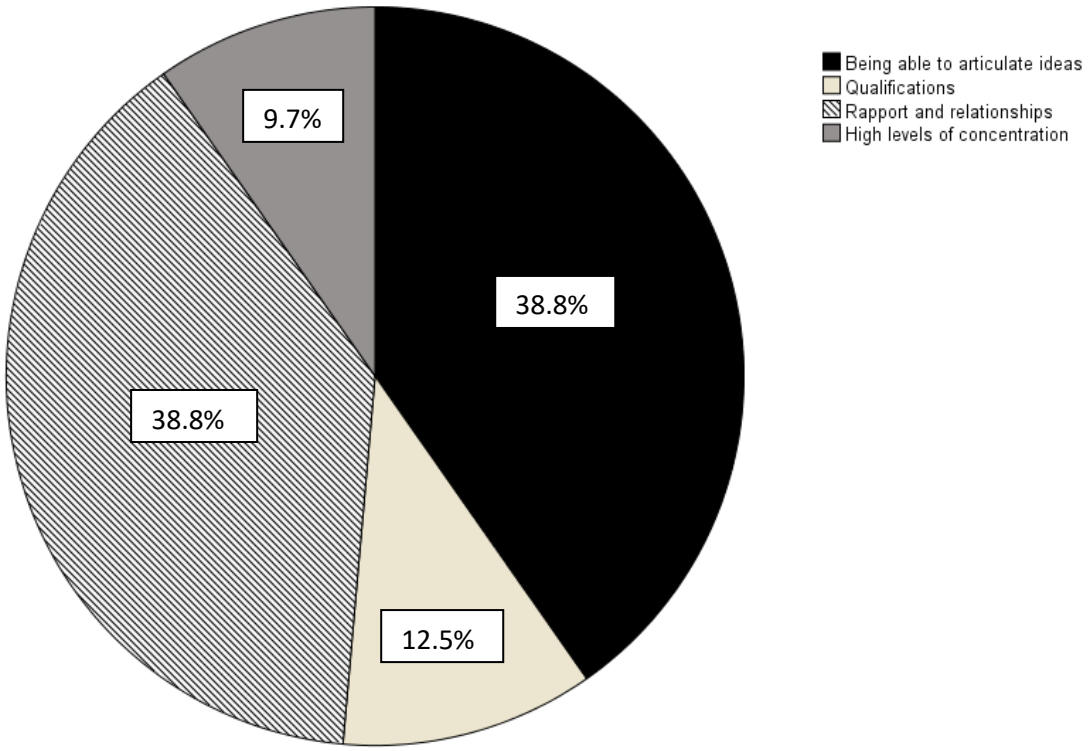

Fig 4. Personal barriers that managers perceive may be an issue for people with DLD.

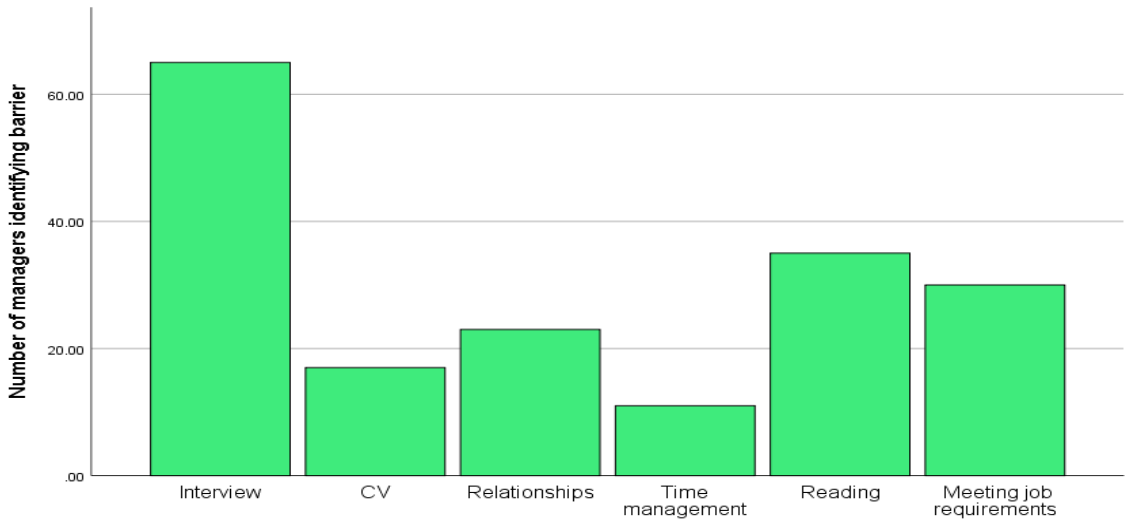

Table 5: Perceived managerial barriers to employment for people with DLD (mean rank).

Perceived barriers to employment	Mean (SD)
Financial	4.81(1.96)
Practical support	3.46(1.50)
No guidelines from management	3.64(2.1)
Lack of staff awareness	3.32(1.78)
Training	4.99(1.95)
Lack of awareness of strengths	2.97(1.87)
Lack of awareness of external oragnisations who can provide support	4.82(1.81)

Table 6. List of current and feasible workplace strategies.

	Present	*Feasible*
No known strategies	41 (53%)	*N/A*
Adapted interview process	9 (12%)	*64 (83%)*
Alternative communication devices (visual support)	10 (13%)	*42 (55%)*
Personal mentor	10 (13%)	*21 (27%)*
Working from home / able to choose work base	19 (25%)	*54 (70%)*
Quiet / private space	7 (9%)	*44 (57%)*
Team building / running job trials	7 (9%)	*28 (36%)*
Regular staff training	10 (13%)	*45 (58%)*
Other	3 (4%)	*N/A*

(answers not mutually exclusive)

Table 7: Participant descriptions of strengths of individuals with DLD.

Participant number	Text response	Potential category
1	Resilience	resilient
2	They are very resilient	resilient
3	Living with DLD	experience
4	Creative	creativity
5	Hard to find one when you don't work closely with the person	unknown
6	Hard working, wanted to get things done properly	work ; thorough
7	Enthusiasm	enthusiasm
8	Compassionate	compassion
9	Determination	determined
10	Finding different ways to communicate	resourceful
11	Simple language	language
12	Empathy	empathy
13	thorough	thorough
14	Focus	focus
15	The person may be more focused on their work than someone who is more social.	focus
16	Innovative thinker	creativity
17	Empathy for children with DLD	empathy
18	Works hard	work

Supplementary material: DLD and the Workplace Study survey.

Welcome!

This study is being conducted by: [redacted for blind review] as part of a Speech and Language Therapy qualification. The project is being carried out by BSc and MSc students. The project supervisor is [redacted for blind review].

Purpose of the research

To gain insight into manager awareness of developmental language disorders (DLD) in the workplace.

Why I have I been invited to take part?

You have reached this page by clicking the link in our open social media invitation. You should only complete this survey if you are currently a manager. We are interested in managers' views of language disorder in the workplace.

Your role in this research

If you decide to participate, you will complete a questionnaire based on your experience. This questionnaire will primarily focus on your awareness of DLD including any experience you have of recruiting, managing, and working with people who have DLD. Time required: The survey will take approximately 15 minutes to complete.

Data protection

Information collected will be used only for the purpose(s) set out in this statement and your consent is conditional on the University complying with its duties and obligations under the General Data Protection Regulation (GDPR). This study has been approved by [university] Research Ethics Committee. The information from this questionnaire will be held by [redacted for blind review] as data controller and processed for the purposes of research. [redacted for blind review] considers the

lawful basis for processing this data to fall under Article 6(1)(e) of GDPR (public task) as the processing of research participant data is necessary for learning and teaching purposes.

Confidentiality

By entering this questionnaire, your geographical region and job role will only be used by the research team and will not be identifiable in the final report of the project, or future publications, except in general summarised data. That is, when research results are reported, responses will be aggregated (added together) and described in summary. Your anonymous responses for the questionnaire as a whole will only be seen staff and students [redacted] and will never be shared with other organisations or any other third party.

Participation and withdrawal

By clicking the button below, you acknowledge that your participation is completely voluntary and that you are aware that you may choose to stop taking part at any time by exiting the survey. You can do so without giving a reason and without disadvantage to yourself. Your responses will only be saved when the "Submit" button is placed at the end of the survey. Clicking the submit button at the termination of the questionnaire to re-confirms your participation in this study, and since the data is anonymous, it will be impossible to retrieve your data once submitted. Only submitted surveys will count in data analysis. Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

Queries

If you have questions or concerns about this research, please contact the project supervisor: [redacted for blind review]. If you have any problems, concerns, or questions about this study, you should ask to speak to a member of the research team in the first instance. If you are dissatisfied with the response, you may contact the Information Compliance Team at [redacted for blind review], who will liaise with [redacted for blind review], to answer your query. If you are dissatisfied with [redacted for blind review] response you may also complain to the Information Commissioner's Office at www.ico.org.ukIf you wish to speak to someone else independent from the study, you can

do this by phoning [redacted for blind review], and ask to speak to the [redacted for blind review], and inform them that the name of the project is: Manager awareness of Developmental Language Disorder in the workplace

You could also write to the Secretary at: [redacted for blind review]. [Redacted for blind review] holds insurance policies which apply to this study.

I understand that:

- ☐ The study involves me completing the questionnaire
- ☐ The data will be held by [redacted for blind review] as data controller as a public task (teaching and learning) (GDPR 6(e)
- ☐ All information is anonymous and confidential
- ☐ My participation is voluntary and no answers will be saved until I press submit at the end
- ☐ [Redacted for blind review] will process this information which will only be used for the purposes above
- ☐ I agree to take part in this study

What is your gender?

- ○ Male
- ○ Female
- ○ Other
- ○ Prefer not to say

What is your age?

- ○ Under 25 years
- ○ 26-35 years
- ○ 36-45 years
- ○ 46-55 years
- ○ 56-65 years
- ○ Over 65 years

Where are you based?

- ○ East of England
- ○ Midlands
- ○ Northwest
- ○ Northeast
- ○ Southeast
- ○ Southwest
- ○ Wales
- ○ Scotland
- ○ Northern Ireland
- ○ Ireland
- ○ Other country

What is your highest educational qualification?

- ○ GCSE, GCE, O levels, etc
- ○ A levels
- ○ Vocational qualification (diploma, certificate, BTEC)
- ○ Undergraduate degree
- ○ Postgraduate degree
- ○ PhD/Doctorate

What area of business do you work in?

▼ Agriculture, forestry & fishing ... Private sector (other)

What is your job title?

_____

How long have you been in a managerial role?

- ○ 0-2 years
- ○ 3-5 years
- ○ 6-10 years
- ○ 10+ years

We are interested in what your main duties are in your managerial role. Tick all that apply.

- [ ] I write job specifications
- [ ] I interview candidates
- [ ] I hire employees
- [ ] I train employees
- [ ] I line manage 1-5 people
- [ ] I line manage 5-25 people
- [ ] I line manage more than 25 people
- [ ] I am the director or most senior person at my place of work

How many people work at your place of employment?

- ○ 1-10
- ○ 11-50
- ○ 51-199
- ○ 200 upwards

When recruiting for employment please rank the following attributes you are looking for? 1 being essential, 4 being not important

____ Being able to articulate new ideas in a precise, timely and confident manner

____ Qualifications such as degree level education

_____Being able to effectively build rapport with colleagues

_____High levels of concentration - ability to spend long periods of time attending to a task

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Have you heard of any of the following?

	Yes	No	Not Sure
Developmental Language Disorder (also known as DLD)	○	○	○
Autism (also known as ASD)	○	○	○
Attention Deficit and Hyperactivity Disorder (also known as ADHD)	○	○	○
Dyslexia	○	○	○
Specific Language Impairment (also known as SLI)	○	○	○

When did you hear/learn about DLD/SLI?

- [ ] I know someone in my personal life who has DLD
- [ ] I know someone professionally who has DLD
- [ ] I knew someone at school/university who had DLD
- [ ] I have had training about it at work
- [ ] Other _____

What was the main way you become aware of the fact you were working with someone who has DLD?

- ○ They told me informally
- ○ They told me formally e.g. as part of appraisal
- ○ It was in a report
- ○ Other staff told me
- ○ It was detailed in the interview/recruitment process
- ○ I deduced that they had DLD from my own understanding

Even if you have not heard of the term DLD, can you think of somebody you know who has weaker communication/language which is not simply due to having English as an additional language?

- ○ Yes
- ○ No

Can you describe the key difficulties they have?

Which of the following would you most associate with Developmental Language Disorder? Please tick all that apply.

- [ ] A person with DLD has trouble with their conversation skills such as connecting topics or describe a series of events
- [ ] A person with DLD was naughty in school
- [ ] A person with DLD has a reduced vocabulary
- [ ] A person with DLD did not receive a good education
- [ ] A person with DLD prefers to spend time on their own
- [ ] A person with DLD has a learning disability
- [ ] A personal with DLD is socially awkward
- [ ] DLD is a childhood disorder, and will be grown out of
- [ ] A person with DLD has low levels of concentration
- [ ] A person with DLD has trouble reading
- [ ] A person with DLD doesn't speak
- [ ] You can't understand what someone with DLD says

Do you currently work with someone who has DLD?

- ○ Yes
- ○ No
- ○ Not sure

DEFINITION

DLD can be described as a persistent developmental language and communication need that cannot be explained by an obvious cause such as being deaf or having an intellectual disability or having English as a second language. The challenges might include:

Having trouble understanding instructions

Finding conversation difficult

Picking the wrong word

Having a limited vocabulary

Needing extra help and time to process what someone has said or written

DLD affects around 7% of all people and is a lifelong disorder. It used to be called Specific Language Impairment (SLI).

Now that you see the definition of DLD above, do you think you have you ever worked with someone who meets this description?

- ○ Yes
- ○ No
- ○ Not sure

If yes: Thinking about any colleagues with DLD can you give one strength and one weakness relevant to the workplace?

- ○ Strength _____
- ○ Weakness _____

How feasible do you think it would be at present to employ someone with DLD in your organisation?

0 10 20 30 40 50 60 70 80 90 100

0-100%	

Please indicate whether you agree or disagree with the statements below.	Disagree	Don't know	Agree
A person with DLD will perform the same as others in a noisy environment	○	○	○
Someone with DLD should not work in a role where they have to deal with customers / clients	○	○	○
A person with DLD will be good at public speaking	○	○	○
A person with DLD will be good at repetitive tasks	○	○	○
A person with DLD will perform better when completing short tasks that involve clear guidelines and goals	○	○	○
A person with DLD will be good in a managerial role	○	○	○
A person with DLD will benefit from a flexible contract	○	○	○

A person with DLD will be better suited to a non-professional role	○	○	○
The best role may vary according to the individual with DLD	○	○	○
DLD affects men more than women	○	○	○
A person with DLD has low intelligence	○	○	○

What are the potential barriers your workplace may have in employing someone with DLD? Please rank the following options from (1) biggest barrier to (7) smallest barrier.

- Financial restrictions (for providing support)
- Lack of practical support in implementing strategies
- No guidelines from higher management about hiring people with communication disorders
- Lack of staff awareness of needs and support strategies
- Training too time consuming/expensive
- Lack of awareness of strengths of people with DLD and how this applies to your workplace
- Lack of awareness of external organisations available for support in hiring those with DLD

Have you received training through work about:

- [ ] DLD
- [ ] ASD
- [ ] ADHD
- [ ] Dyslexia

Do you think you have received adequate training?

	Yes	No
DLD	○	○
ASD	○	○
ADHD	○	○
Dyslexia	○	○

Which of the following do you think could be the biggest barriers to employment for people with DLD?

- [ ] Completing a CV or application form
- [ ] Interviewing
- [ ] Relationships / Making friends
- [ ] Time management skills and organisation
- [ ] Carrying out the requirements of the job
- [ ] Reading and understanding instructions

Are there any other barriers that come to mind?

_____

What support / adjustments does your work currently have in place for employees with a Speech, Language and Communication Need (SLCN) such as Developmental Language Disorder (DLD)? (tick all that apply)

- ☐ An adapted interview process
- ☐ Alternative communication devices such as visual support or technical apps
- ☐ A personal mentor
- ☐ The opportunity to work from home when required
- ☐ A designated room or area for employees to use such as a quiet room or sensory space
- ☐ Team building exercises such as away days / running job trials
- ☐ Regular staff training to raise awareness of language issues
- ☐ Other, please specify _____
- ☐ None that I know of

Below are some strategies that could be implemented to support someone with DLD in the workplace. How feasible would it be to implement these changes in your workplace?

	Very feasible	Unsure	Not feasible
Changing and adapting the interview process	○	○	○
Asking what work environment is best for the potential employee	○	○	○
Providing a workplace mentor	○	○	○
Giving a private space to go to when needed	○	○	○
Team days / Running job trials to identify areas of support needed	○	○	○
Workplace training on DLD for all staff	○	○	○
Supplementing communication through the use of visual tools or gestures	○	○	○

Which of these procedure(s) would you like to see in place to assist employees with a Speech, Language and Communication Need (SLCN) such as Developmental Language Disorder (DLD)?

- [ ] An adapted interview process
- [ ] Alternative communication devices such as visual support or technical apps.
- [ ] A personal mentor
- [ ] The opportunity to work from home when required
- [ ] A designated room or area for employees to use such as a quiet room or sensory space
- [ ] Team building exercises such as away days
- [ ] Regular staff training to raise awareness of SLCN
- [ ] Other, please specify _____
- [ ] None - they are not really needed /relevant

Please press submit below to complete the survey

○ **SUBMIT**