

# Assessment and diagnosis of Developmental Language Disorder: The experiences of speech and language therapists

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## Abstract

**Background:** For many years research and practice have noted the impact of the heterogeneous nature of Developmental Language Disorder (also known as language impairment or specific language impairment) on diagnosis and assessment. Recent research suggests the disorder is not restricted to the language domain and against this background, the challenge for the practitioner is to provide accurate assessment and effective therapy. The speech and language therapist aims to support the child and their carers to achieve the best outcomes. However, little is known about the experiences of the speech and language therapist in the assessment process, in contrast to other childhood disorders, yet their expertise is central in the assessment and diagnosis of children with language disorder.

**Aims:** This study aimed to gain an in-depth understanding of the experiences of speech and language therapists involved in the assessment and diagnosis of children with Developmental Language Disorder including the linguistic and non-linguistic aspects of the disorder.

**Methods and procedures:** The qualitative study included three focus groups to provide a credible and rich description of the experiences of speech and language therapists involved in the assessment of Developmental Language Disorder. The speech and language therapists who participated in the study were recruited from different types of institution in three NHS trusts across the UK and all were directly involved in the assessment and diagnosis procedures. The lengths of speech and language therapist experience ranged from 2 years to 38 years. The data were analysed using inductive thematic analysis within a phenomenological approach.

**Outcomes and results:** The analysis of the data showed three main themes relating to the speech and language therapists' experience in assessment and diagnosis of Developmental Language Disorder. These themes were the participants' experiences of the barriers to early referral (subthemes – parents' misunderstanding and misconceptions of Developmental Language Disorder, bilingualism can mask Developmental Language Disorder and public lack of knowledge of support services), factors in assessment (subthemes – individual nature of impairments, choosing appropriate assessments, key indicators and identifying non-language difficulties) and the concerns over continued future support (subthemes – disadvantages with academic curriculum, disadvantages for employment, impact of Developmental Language Disorder on general life chances).

**Conclusions and implications:** This study provides first-hand evidence from speech and language therapists in the assessment of children with Developmental Language Disorder, drawing together experiences from speech and language therapists from different regions. The implications are that support for early referral and improved assessment tools are needed together with greater public awareness of Developmental Language Disorder. The implications are discussed in relation to the provision of early and effective assessment and the use of current research in these procedures.

## Keywords

Developmental Language Disorder, assessment, diagnosis, speech and language therapy

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## Background and aims

In comparison to other childhood disorders (i.e. autism), Developmental Language Disorder (DLD) (previously known as specific language impairment or SLI) receives little public attention despite affecting around 7% of the population (Bishop, Snowling, Thompson, Greenhalgh, & the CATALISE Consortium, 2017). The term DLD was proposed following the CATALISE consultation with language professionals from several countries (Bishop, Snowling, Thompson, Greenhalgh, & the CATALISE Consortium, 2016) and this was thought to provide a more appropriate diagnostic description of the difficulties faced by children with language problems which may not be specific to language and may be co-morbid with other conditions. Against this background, the aim of this paper was therefore to gain an in-depth understanding of the experiences of speech and language therapists (SLTs) involved in the assessment and diagnosis of children with DLD including both the linguistic and non-linguistic aspects of the disorder. Diagnosis is both controversial and complex due to the heterogeneous nature of DLD (Ebbels, 2014; Wright, 2014). The controversy in diagnosis arose largely due to the use of the SLI label to describe deficits which seemed to extend beyond the language domain. Some non-linguistic aspects of DLD (e.g. hypothesis-testing and analogical reasoning) have been recognised since the 1980s (Nelson, Kamhi, & Apel, 1987; Nippold, Erskine, & Freed, 1988) and more recent research (Henry, Messer, & Nash, 2012; Im-Bolter, Johnson, & Pascual-Leone, 2006) has focused on the role of executive function abilities such as inhibition and switching, so the new terminology has gone some way towards addressing these issues. A further controversy was that diagnostic labels were being used to obtain and, in some cases, deny access to services by applying either lenient or restrictive diagnostic criteria (Reilly, Bishop, & Tomblin, 2014). Understanding the limitations of the assessments and the areas which are not well served by current assessment tools requires expertise on the part of the SLT (Dockrell, 2001; Whitehouse, 2014). Against this background, the SLT is primarily concerned with early assessment and intervention for children with DLD, as appropriate early intervention is recognised as key in overcoming the known association between childhood speech and language functioning and negative longer term effects such as depression, anxiety and general social adaptation (Beitchman et al., 2001; Clegg, Hollis, Mawhood, & Rutter, 2005; Conti-Ramsden & Botting, 2004). The consequences for children and their families are therefore considerable (Bishop, 2004; Bishop et al., 2016). The SLT's expertise in assessment is central in accurately identifying

children so that they can access services. However, there is a paucity of qualitative research exploring the nature of the practice of the SLT, their knowledge and experiences or the challenges they face, in assessment practice.

It is generally accepted that the later intervention for DLD begins, the more likely are adverse longer term effects, i.e. poor educational outcomes, long periods of unemployment, difficulties in close or romantic relationships and a high risk for depressive and anxiety disorders (Beitchman et al., 2001; Clegg et al., 2005; Conti-Ramsden & Botting, 2004; Haynes & Naidoo, 1991). The consequences of a delayed assessment and intervention for children and their families are considerable, yet families often face difficulties in obtaining a diagnosis or the right support in time (Bishop, 2004; Bishop et al., 2016). Evidence for the importance of early intervention also comes from longitudinal studies such as that of Conti-Ramsden, St Clair, Pickles, and Durkin (2012) where findings suggest the outcomes of interventions after the age of seven years were that of a continued language delay rather than resolution. As language development is dynamic over time, children with DLD use compensatory mechanisms as language develops.

Considerable expertise is required of the SLT to interpret the quickly evolving evidence base. There has been significant progress in the theoretical understanding of DLD and in the development of language, with a growing recognition that multiple mechanisms may underlie the range of profiles observed in these children. Prior to the DSM-5 (American Psychiatric Association, 2013), diagnosis of SLI was on the basis of age appropriate non-verbal ability and exclusionary criteria but recent research suggests children with DLD have deficits in non-verbal ability and impairments in some executive function abilities (Henry et al., 2012; Pauls & Archibald, 2016; Roello, Ferretti, Colonello, & Levi, 2015). The heterogeneity of DLD (receptive, expressive, mixed, co-morbidity) requires skill on the part of the SLT to identify the characteristics. There are many linguistic assessments (i.e. grammar, phonology and semantic tests) and some non-linguistic aspects such as phonological awareness, phonological short-term memory and working memory are addressed in tests such as the CELF 5 (Wiig, Sekord & Semel, 2013) and the Comprehensive Test of Phonological Processing-2 (Wagner et al., 2013). These tests are used to identify children with DLD ruling out disorders which may share some features, e.g. ASD. Assessment for Social Communication Disorder (SCD – previously Pragmatic Language Impairment) has eluded validity but is seen also in ASD and other disorders which can be co-morbid, i.e., Attention Deficit Hyperactivity Disorder (ADHD). Research suggests a broader

spectrum of difficulties (i.e. executive function) and therefore more broad assessment may be needed to provide suitable interventions. The current study aims to provide an in-depth understanding of the experiences of SLTs involved in the assessment and diagnosis of children with DLD including both linguistic and non-linguistic aspects of the disorder.

## Methods

### Design

An inductive thematic analysis was used for this qualitative study in the context of a phenomenological approach. Focus groups were used to provide a detailed description of SLTs' experiences and perceptions in their professional role of assessing and supporting children with DLD and SCD (previously both classified as SLI). Focus groups were selected as the most appropriate method since they offered a forum for the exchange of ideas between the participants, with some comments sparking additional comments within the group. The researcher was aware of the potential for domination of the group by individual participants or for non-contribution of some participants in a focus group situation, but in practice, these factors did not arise. The number of focus groups (3) was decided upon in order to give reasonable geographic coverage across England (1 in the north, the midlands and the south). Following the recommendations of Guest, Namey, and McKenna (2017), it was decided that this number of focus groups would be sufficient to identify all of the most prevalent themes. In line with the recommendations of Smithson (2010), the maximum number of participants in each focus group was set at 10. This number was decided upon to ensure a wide variety of experience amongst the participants whilst maintaining a suitable group size for discussion. It was also considered (following the guidance from Guest et al., 2017) that this group size would be a reasonable estimate of when data saturation would be reached, i.e. when new information produces little or no change to the codes identified.

A set of semi-structured interview questions was developed based on the topics identified from the current literature (see Appendix 1). Consideration was given to the one study of experiences of SLTs in bilingual diagnosis (O'Toole & Hickey, 2012) and in similar studies diagnosing other childhood disorders, e.g. autism and related disorders (Charman & Baird, 2008; Rogers, Goddard, Hill, Henry, & Crane, 2016; Rutherford et al., 2016). Each question was intended to stimulate discussion on issues relevant to the research question. Some closed questions were included, e.g. 'Are there any reliable indicators you

would look for in a child who has SLI?', but the content of these were deliberately phrased so as to stimulate discussion on a topical issue, rather than generate a simple yes or no answer. The term SLI was used throughout as the SLTs had not yet adopted the new DLD terminology. Furthermore, the focus of the study was SLTs' experience of diagnosis not on changes in terminology and classification.

In order to build rapport, the participants were asked about their roles before the questions began. A semi-structured interview was designed for use in three focus groups to enable participants to use their own words to describe their feelings about their experiences and to dynamically interact and debate with colleagues in the focus group situation. The focus groups therefore were entirely focused on the beliefs, perceptions and interpretations of the participants themselves.

The focus groups were led by the same researcher acting as a facilitator. The researcher has no professional background in speech and language therapy and therefore the potential for leading or biasing the data collection and analysis was limited. To overcome any possible bias, the researcher engaged in a process of reflexivity in line with procedure in Ritchie and Lewis (2005).

### Settings

In order to gain access to a variety of institutions in which assessment and diagnosis of DLD take place, three different types of establishment were approached. One was a specialist language school which accepted only primary school-aged children who had already exhibited language difficulties. One was a specialist language unit within a mainstream primary school where children spent half the day working intensively on overcoming their language difficulties. The third was a specialist language school catering for the needs of children from primary school age through to senior school age. The schools were identified on the basis of having experience of assessing children with DLD alongside those with autism and all had children from the age of five upwards. Also, all the schools had NHS SLTs working with the children in their care even though these were educational rather than clinical environments. The children in all three schools had been identified as having language difficulties and some had undergone an initial assessment before admission. The SLTs in each school had been part of the assessment and diagnostic process.

In order to maximise uninhibited contributions from the participants, the data collection was carried out in quiet rooms in the participants' professional locations. The timings of the groups followed the recommendations of Krueger and Casey (2015) and were planned for 1.5 hours duration with a maximum length of 2 hours.

## Sample

The inclusion criteria related to the study's objective to gather evidence from experienced SLTs with first-hand knowledge and direct practical experience of assessing and diagnosing children with DLD. All the participants included in the study met the following criteria:

- Qualified SLTs
- Currently involved in the assessment and diagnosis of children with DLD
- A minimum of two years' experience of the assessment and diagnosis of children with DLD.

Two years' experience was considered an appropriate minimum level as participants with this level would have accumulated a considerable amount of casework in this area and would have been exposed to a variety of situations.

The sampling strategy aimed to reflect a degree of variation in the regional experiences of SLTs and was therefore based on geographic location rather than demographics. The strategy also aimed to reflect the experiences of SLTs in different types of institution. A purposive sample was therefore taken from three different types of institution in different areas within the UK. The Headteacher of each of the schools was approached and they were asked to liaise with their staff in order to provide a suitable selection of participants for each focus group, given the aims of the research. None of the target participants opted out of the research.

## Recruitment

The research was conducted in accordance with the ethical approval obtained prior to data collection from the Health & Human Sciences Ethics Committee of the University. The researcher acknowledged the role of the Headteacher in acting as a potential gatekeeper in the (possibly biased) selection of participants from their staff who met the inclusion criteria, but this was unavoidable in order to gain access to suitable participants working in front-line settings.

## Participant characteristics

Seventeen SLTs were involved in the three focus groups with five in two of the focus groups and seven in the other focus group (participant numbers were less than the recommended maximum of eight by Smithson, 2010). Their ages ranged from 23 to 50 with a mean age of 39. Fifteen were female and two were male. All were directly involved in the assessment and diagnosis of children with DLD. All met the minimum experience

requirement of having two years working in the field. The SLTs who participated in the study were recruited from three NHS trusts. The lengths of therapist experience ranged from 2 years to 38 years.

## Data collection

The researcher acting as facilitator intervened as and when necessary to probe further into issues which arose spontaneously but were of high relevance to the research question. For example, the issue of assessing and diagnosing bilingual children was not originally included in the interview questions but was mentioned by several participants and the researcher probed further to determine the participants' views on their experience of this.

## Data recording and handling

All the focus group discussions were audio-recorded and were transcribed verbatim by the first author for subsequent thematic analysis. The transcripts were analysed using thematic analysis techniques (Braun & Clarke, 2006). Transcripts were read and re-read for meaning and thereafter coded to capture the main tenets of the participants' comments, descriptions, explanations and views related to the focal questions of the study. The initial analysis was conducted within each focus group followed by an across groups analysis which was organised around similarities and differences identified in the data from each group. The stages of analysis involved firstly, familiarisation with the data through reading and re-reading the transcripts, followed by the generation of initial codes for each transcript and subsequently comparing these codes with others both within and across transcripts for each data set, resulting in codes being collated into potential themes for each group. The subthemes which were identified were sorted into cohesive groups and after further review and subsequent restructuring, the main themes were identified. An audit trail was used to ensure the themes represented the views of the participants. Rigour was achieved by revising, merging and splitting themes through an iterative process. The final themes were reviewed independently by the second author.

*Quality.* A process of reflexivity was applied by the researchers which involved assessing to what extent their knowledge of the research in this area could influence the way questions were asked and the data were interpreted. Particular attention was paid to the objective presentation of the questions and both researchers were satisfied that no attempt had been made to lead the participants in a certain direction. For example,



question 6 asking whether any non-language difficulties were seen by SLTs was only included if this issue had not arisen naturally, and in two of the three focus groups this information had already been offered.

### Results

A thematic analysis was undertaken (Braun & Clarke, 2006). The 17 subthemes which were originally identified were collapsed into 10 subthemes. For example, two separate subthemes were originally identified as ‘Understanding delay can be a deficit’ and ‘Coming to terms with a child with DLD’ and these were collapsed into one subtheme which encompassed ‘Parents’ misunderstanding and misconceptions of DLD’. The subthemes yielded three main themes which are discussed in general terms in this article: Barriers to early referral, Factors in assessment and Concerns over continued future support (see Figure 1).

#### Main theme 1 – Barriers to early referral

The SLTs expressed concern about the barriers to referral from the perspective of the child, the parents and wider public understanding. In their view, parents were not aware of DLD, of the support available or how to access services providing intervention for their child. Several SLTs contrasted the diagnosis of DLD with ASD and they expressed concern about the inequity which they felt was largely due to a lack of public awareness of DLD. Interestingly, they did not compare the diagnosis of DLD against disorders other than ASD. They noted that in terms of referral this was of

concern and reported without exception that early referral was very important for achieving the best outcomes from interventions. However, early referral was hindered by the parents’ misperceptions of DLD and SLTs felt there was a need to publicise the help available.

The SLTs reported that parents lacked knowledge of DLD and if they noticed the language delay, did not consider it as something which needed intervention and support, but rather something that would resolve itself. This main theme encompassed concerns about the issues with parents’ misunderstanding of children’s language problems and the SLTs’ widely held view that early referral is essential.

Many (at least four SLTs in every focus group) described case examples in which parents had been reluctant to acknowledge that their child may have a language problem:

SLT 8: Very often families hope that things will turn out OK and their child is just delayed, whereas it may be that the level of deficits they are showing would point to a language deficit rather than delay.

The SLTs also expressed the difficulties posed by the existence in some areas of local guidelines which prevented them directly offering support to the child’s parents:

SLT 9: If parents are unaware that help exists, then it is difficult to ask and the issues are never addressed.

Parents were also found to misunderstand what was meant by intervention or help and they tended to

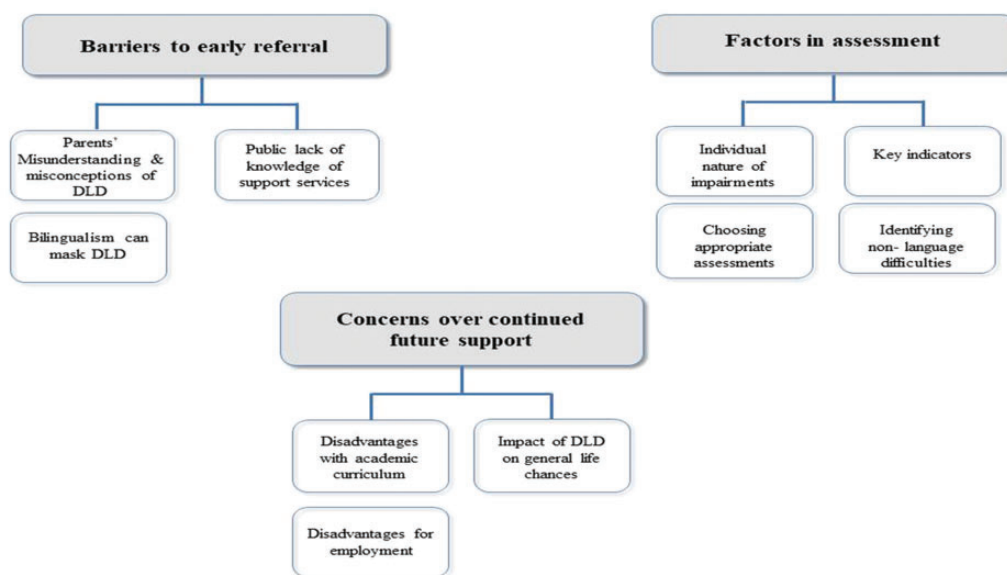


Figure 1. Thematic map of major themes (in grey) and subthemes.

interpret the need for intervention as specialist provision in a special school:

SLT 11: Parents don't know about us. They have to ask "is there any specialist provision for my child?" and the minute you talk about that they think you mean special school.

The concern of SLTs was that such barriers resulted in a delay in being referred.

SLT 4: If you look back in the history of the children who come to us at the age of 7 and later you would see that there were early warning signs of things not being right and these were just never picked up on at the time by parents or teachers.

There was a strong consensus (15/17 SLTs) that early intervention was important for positive outcomes. They agreed that some form of additional screening of children around the age of 3 to 4 years coupled with tertiary referral to a specialist provision would be beneficial to check that their language is developing as it should. This would result in earlier referral than is currently the case and enable effective intervention to be put in place. The SLTs stated strongly that screening and appropriate referral should be done before the child enters school:

SLT 12: You don't want to leave it until they get in the classroom and find they have got real problems.

The SLTs noted that delay in referral could also be due to bilingualism which can mask the underlying DLD:

SLT 9: Some children, especially bilingual children tend to be referred later because the fact that they are bilingual tends to mask the SLI and the assumption is that the child is not talking so well because it's bilingual and it's learning bilingually, which is the problem, whereas it is a language issue.

### *Main theme 2 – Factors in assessment*

The SLTs were entirely consistent when reporting key indicators of DLD, i.e. word order errors, verb errors, word finding problems, non-word repetition difficulties and to a lesser extent difficulties in understanding and producing narratives (muddling ideas and expression of ideas) and slow processing of verbal information. However, all SLTs commented on the fact that the key indicators as incorporated into the standardised tests could only contribute so much to assessment and that observing the child's behaviour informally was

also a valuable indicator, particularly when distinguishing children with DLD from those with ASD. Indeed, the SLTs reported that distinguishing these two disorders in children did not pose any difficulty:

SLT 6: The SLI child is really keen to communicate but isn't able to do so effectively. The child with ASD is only keen to communicate on topics that interest them, so they can be quite narrow in what they talk about. That is a very key marker.

The whole assessment process was also seen as being sometimes markedly different in children with ASD compared to those with DLD, particularly with the answering of questions in an unusual manner:

SLT 2 The tendency of some children on the spectrum to come up with unusual answers can also mean that they don't always seem to pass the test as it has been designed, yet some of their answers are acceptable if a bit unconventional.

Another feature of the assessment process was mentioned as being the contrasting approaches of the children with ASD and those with DLD to the testing process, with the child with autism tending to treat the assessment as a problem solving task which detracts from the procedure's purpose as in the following comment:

SLT 3 : You get some children on the autistic spectrum who positively enjoy doing tests and see it more as a fun puzzle task than as a proper language task, so I'm never entirely convinced that the test is actually measuring their language ability because they seem to treat it more as a problem solving task.

The differences between children with ASD and those with DLD were also observed in general classroom activities, such as reading and producing narratives. Informal observation was seen by all participants as part of the assessment process. It was noted that, although there were some individual differences, the children with DLD tended to struggle with the macro-structure of the narrative and became very muddled, whereas the children with ASD could generally produce a good narrative but with very limited content. As one SLT commented in relation to the narratives produced by children with ASD:

SLT 4: You know they cannot stop themselves from bringing in their favourite figures, so it can be very predictable.

One area in which there was observed to be similarity in the classroom behaviour of both children with ASD and

those with DLD was in the problem of switching from one task to another as in the following observation:

SLT 3: We might work on Number, Shape, Measuring for a couple of days. SLI and ASD children find it really difficult to jump from one thing to another, so for example if we do addition that might go well, but then if we do subtraction, they will just do addition again, because they can't move onto subtraction. That is a shared thing with both ASD and SLI.

The SLTs were generally confident that they could distinguish between children with ASD and those with DLD and they explained how they relied on their experience of working with children with DLD to inform the choice of assessment and the interventions they would put in place. They acknowledged there was likely to be variation in assessment practice across service areas depending on the availability of assessments in each area and differences in the expertise of the SLT. The experience of the SLTs informed their approach to assessment and their judgements in choosing the appropriate subtests from a variety of tools:

SLT 9: It [assessment] relies heavily on the skill of the SLT which is OK if you have a lot of experience and you feel you are aware of the kinds of problems that children present with...

Some SLTs used older tests – there was mention of the Canterbury and Thanet test – as they felt they tapped into SCD (previously known as Pragmatic Language Impairment). They felt the existing tests such as the CELF (Wiig, Sekord & Semel, 2013) did not really tap into this aspect of language. They also used non-formal assessments:

SLT 4: I use a mixture of standardised and non-standardised tests, so if there are various gaps that standardised tests don't pick up on, I can use informal assessment.

Another factor was the heterogeneity of the DLD population (12/17 SLTs) which required different assessments and extended to common non-language characteristics such as memory and organisation abilities. For example, some children were unable to remember to meet at a certain place at a certain time or to return to a different classroom and may need strategies put in place:

SLT 10: The other thing you must do is give them cues to remember things so if the classroom is on the way to another classroom they might have the cue to think "I should go in there". So they would ask themselves "where should you be?"

These organisational/memory difficulties were seen to persist and one SLT noted that for some children no improvement was seen in over two years of working with them. The SLTs unanimously expressed the importance of treating children individually because of the heterogeneity of the disorder. They felt that early screening would be useful and some suggested it would be more useful if it allowed progress tracking over time.

### *Main theme 3 – Concern over continued future support*

All the SLTs expressed concern about the effects which DLD could have on the children's later lives. These concerns were in relation to later academic and employment success and for future relationships.

Over a third of the SLTs drew attention to the problems children with DLD have with accessing the whole academic curriculum due to their language problems. Children with DLD can face difficulties in numeracy as a consequence of phonological and working memory difficulties:

SLT 13: 20 and 12 are very often confused by children with SLI as they start with the same sound.

The knock-on effects of poor academic achievement on employment prospects were a source of heartfelt concern for the children's future wellbeing:

SLT 10: If you think about it, who is going to have the most problems with that [networking]. It's going to be those who have speech and language problems. Those are the ones who are going to fail most in that sort of situation.

SLT 11: I think that is the biggest problem for children with SLI. If they fall behind because of the way the world is, they are much more at risk.

A number of SLTs in each focus group pointed out that the world is becoming increasingly focused on communication and networking, both of which disadvantage the child with DLD.

## **Discussion**

This study aimed to gain an in-depth understanding of the experiences of SLTs involved in the assessment and diagnosis of children with DLD including the linguistic and non-linguistic aspects of the disorder. The main findings were that three main themes could be identified: Barriers to early referral, Factors in assessment and Concerns over continued future support. This is

the first study in the UK to examine the experiences of SLTs working with school-age children diagnosed with DLD, although other studies (Collis & Bloch, 2012; Eadie, Yorkston, & Amtmann, 2006; Roulstone et al., 2015; Watson & Pennington, 2015) have examined the assessment process in clinical and community settings for other disorders. Their findings are similar to those of the current study in that the SLTs working with other disorders such as progressive dysarthria and cerebral palsy commented on the need for diagnostic tools which look beyond the known clinical features of the disorders to consider aspects of communication which are not purely linguistic. The findings of the current study are therefore in line with these previous studies, which can be seen to reflect the recent progressively shifting evidence base towards a multiple mechanisms view which considers the contribution of non-linguistic deficits in language development (Henry et al., 2012; Pauls & Archibald, 2016) and the known issues in diagnosis. Non-linguistic aspects include shifting and sustained attention and a major focus of recent research (Marton, Kelmenson, & Pinkhasova, 2007; Pauls & Archibald, 2016; Spaulding, 2010) has been a lack of inhibition and its potential effect of overloading working memory (Archibald & Gathercole, 2006) which would increase the processing demands on the child, making language particularly difficult.

Also in line with the studies on other disorders there are a number of challenges for the SLT in the referral and assessment processes. For example, previous studies (Collis & Bloch, 2012; Eadie et al., 2006; Watson & Pennington, 2015) found that the existing tools for assessment of language difficulties were inadequate at some level and this sentiment is echoed in the current study. Additionally, Roulstone et al. (2015) found that parents were not well informed about the availability of speech and language therapy and this view was also common in the current study. However, the current study also found that certain issues thought to be challenging were actually seen by the SLTs as straightforward. For example, there is a considerable body of research on the overlaps between autism and DLD and the difficulties these may present in assessment and diagnosis (Conti-Ramsden, Simkin, & Botting, 2006; Whitehouse, Barry, & Bishop, 2007; Williams, Botting, & Boucher, 2008) but in the current study this was not seen by any SLT as being problematical. This may reflect the high level of professional experience amongst many of the focus group participants and may also indicate the marked contrasts in non-verbal communication which a skilled SLT is able to observe in a child with autism and a child with DLD. It is also the case that in some children, autistic-like behaviours develop over time and the lack of difficulty in distinguishing children with DLD from those with autism

found in the current study may simply be reflective of the fact that the assessments being discussed are carried out mainly in the early years. The comparison which the SLTs made between diagnosing DLD and ASD rather than other developmental disorders may also reflect the most common reasons why children are referred to a specialist unit.

Children can be referred for language support by parents, health visitors, teachers, but the SLTs expressed the view that there were barriers to the referral process which were at odds with the need for early referral to ensure the best outcomes for the child. This view was supported by explanations that parents were unaware of childhood language disorder and assumed that any delay in their child's language would resolve itself over time. These findings relate closely to those of Roulstone et al. (2015) who reported that, after engaging with SLT services, parents often came to realise and accept that their child had communication difficulties. In referral, the SLT seeks to support the parent and child in understanding DLD but in some areas the SLTs reported that local guidelines are such that the parent is required to ask about the support that is available for their child. The view of the SLTs in this area was that, given that parents are unaware of DLD and any supporting services, this process is not straightforward. This view can be related to the findings in the literature on parents' perspectives of speech and language therapy (Glogowska & Campbell, 2004; Marshall, Goldbart, & Phillips, 2007; Roulstone et al., 2015) where the same sentiments are expressed. The SLTs noted that the referral issues largely remained even though there had been initiatives to publicise developmental language impairment (Bishop, Clark, Conti-Ramsden, Norbury, & Snowling, 2012) and to gain consensus on criteria for the re-classification of DLD (Bishop et al., 2016) and expressed disappointment that this was the case.

The views of the SLTs in relation to assessment were consistent in noting the limitations of assessments themselves, i.e. lack of a reliable measure of social communication difficulties, and the broader impairments and a main emphasis on the language domain, i.e. phonology and grammar. They consistently expressed the importance of considering the whole child and this resonates with the approach described by SLTs in the research on other language disorders (Collis & Bloch, 2012; Watson & Pennington, 2015). Nine of the 17 SLTs mentioned the inclusion of non-language elements (e.g. phonological short-term memory and working memory) in standardised assessment tools such as the CELF 4 (now superseded by the CELF 5, Wiig, Sekord & Semel, 2013) but this was felt to fall short of identifying the full extent of these deficits. This also relates to research findings on assessment tools used



with other language disorders (e.g. Collis & Bloch, 2012) in which SLTs expressed the need to assess beyond the technical impairment which was not being met by the assessment tools available. Nevertheless, the SLTs were very consistent in their views of early markers of DLD, i.e. short simple sentences with grammatical omissions (verb-endings, grammatical function words), poor non-word repetition, and these markers are widely reported in the literature as key characteristics (Bishop & Leonard, 2014). Interestingly, there is an abundance of research investigating the identifying features of language impairment versus autism (Bishop & Norbury, 2002; Manolitsi & Botting, 2011; Whitehouse et al., 2007; Whitehouse, Barry, & Bishop, 2008), but in practice the assessment process was seen by many experienced SLTs as being guided more by observation of the approach taken by the child with autism not just the result of the test.

Descriptions of organisational and memory difficulties common in children with DLD were often mentioned spontaneously by the SLTs without prompting. These descriptions are consistent with the literature on executive function difficulties which have been found to be impaired in children with DLD (Henry et al., 2012; Pauls & Archibald, 2016; Roello et al., 2015). Difficulties in remembering to execute an intended action in the future (prospective memory difficulties) were described by eight SLTs and this also relates to recent research (Mackinlay, Kliegel, & Mäntylä, 2009; Rendell, Vella, Kliegel, & Terrett, 2009; Ford, Driscoll, Shum, & Macaulay, 2012). Thirteen of the 17 SLTs reported the usefulness of non-formal assessments and observing children (as part of the standard practice) in order to provide support for these difficulties which are not captured by current assessment tools (which may include some but not all non-linguistic features).

The availability of such assessments may differ across NHS trusts and an important finding was the potential for variation in assessment across service areas. In current practice, the guidelines (Taylor-Goh, RCSLT, 2017). State that diagnosis of DLD requires the use of standardised tests, observation, a measurement of language deficits and their functional impact, in addition to an assessment of phonological short-term memory and working memory. It was clear that the SLTs' experience was an important factor in their choice of assessment and intervention but, although they were trying to follow best practice guidelines, the choice of appropriate assessments was partially dependent on availability which may vary across service areas. This relates to previous research findings (Collis & Bloch, 2012; Watson & Pennington, 2015) in which SLTs described using assessments they had made themselves or taking a pragmatic approach to assessing beyond the limits of the available tools. In the current

research, one group of SLTs reported using a relatively old assessment as they felt it captured pragmatic language difficulties (SCD), whereas other more recent tests were deemed unreliable. This calls into question the reliability and validity of older assessments tests, which, although thought more appropriate by SLTs, may be lacking in other aspects if they are not standardised. This highlights the potential variation across areas.

The experience of the SLT was mentioned by every focus group as being an important factor and this may also vary across service areas, but further research is necessary to better understand such variation, and particularly issues in relation to bilingualism, in order to ensure consistency in assessment and diagnosis.

The researcher was conscious of the risk of 'group think' affecting the focus groups, whereby the members of the group seek to minimise conflict by suppressing alternative viewpoints. This could have been an issue as, in each focus group, all the participants were drawn from the same institution, but in practice this did not seem to arise.

It was interesting to find that discussion of the provision of support beyond the primary school arose naturally in each focus group. DLD was seen to affect academic success (for example in misunderstanding numbers that sounded similar) and social relationships. SLTs were also concerned, given the ever increasing use of electronic communications and networking needed for careers and employment, that these children are at a disadvantage. This view is reflected in the literature (Conti-Ramsden, Mok, Pickles, & Durkin, 2013) which describes how DLD can contribute to social difficulties in children's peer relationships and self-reported emotion and behavioural problems in adolescents with persistent language impairment. A diagnosis is needed to ensure future support but the dynamic nature of development and the mechanisms employed are known to lead to changing profiles of DLD children such that the changing needs of the children need to be supported throughout the educational process (Pariße & Maillart, 2009). It was beyond the scope of this study, but a greater understanding of the issues would be beneficial to inform effective continued support.

The themes suggest that improvements in practice could alleviate the referral process, the variation in the use of assessments and provide continuing support beyond language delay. These views chime with the recommendations of the 'Bercow: Ten Years On' report which include a strengthening of the Department of Education's strategy to support opportunity areas to develop plans to improve communication and language skills across the age range, not just in the early years. Other recommendations in the report echo the findings from the current study such as the

provision of an accessible and equitable service for all families. The issue of awareness of the disorder is challenging to resolve, but efforts to provide information across the educational sector (i.e. teacher training, SLT training) and to parents (advertising website information and so on) are warranted (and form part of the recommendations of 'Bercow: Ten Years On') in addition to the already well-known work of campaigns to increase awareness (Bishop et al., 2012, 2016; RALLI Campaign; 2014; Raising Awareness of Developmental Language Disorder, 2018). A review of current guidelines in relation to referral and the process for parents to access services would be useful to further understand and ultimately improve on this process. There appears to be some trepidation on the part of parents around diagnosis and there could be an issue of stigma, but further research is needed. Finally, the availability and preferred use of different assessment by SLTs in practice would be an interesting avenue for further research.

## Conclusion

In summary, the aim of this research was to gain an in-depth understanding of the experiences of SLTs involved in the assessment and diagnosis of children with DLD including both the linguistic and non-linguistic aspects of the disorder. It was suggested by the SLTs that a wider public understanding would alleviate some of the issues in referral as parents are currently unaware of the disorder, of the support services and misunderstanding of the implications of assessment and diagnosis are common. SLTs suggest parents need support in understanding the referral and assessment process and in understanding the diagnosis. Clearer communication of information to parents could go some way to achieving earlier referral and further research may shed light on the differences in practice across regions. Many current assessment tools are based primarily on language even though some (e.g. CELF 5, Wiig, Sekord & Semel, 2013) have incorporated elements of non-linguistic features such as phonological short-term memory and working memory, but all SLTs noted common behaviours related to executive function deficits. The conclusion can be drawn that there is still scope for the current research on non-linguistic features of DLD to be more widely used to inform practice. There appears to be a need for assessments for the bilingual child which would incorporate non-linguistic features. Early referral could be supported by early screening, not used as a universal screening but based on the concerns of parents and carers (Bishop et al., 2017). There also appears to be a need for future research to understand the nature of assessment, given the new DSM-5

classification of SCD which spans both DLD and ASD. The implications of later referral and persistent DLD are of concern and SLTs agreed that support beyond the early school years was needed.

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## Appendix I. Focus group questions

### Semi-structured schedule

1. How do children come to be referred to you?
2. What do you think of current assessment procedures?
3. Are there reliable indicators you would look for in a child who has SLI, and if so, which?
4. Is there such a thing as a gut instinct for whether a child has SLI, and if so, how does this work?
5. Do you see any non-language difficulties which would be noticeable in a child who has SLI, and if so, what are they?
6. If you could design a screening tool for SLI what would be the most important features you would want to see in it?