Development and delivery of an educational intervention that increased teachers' awareness, knowledge, and actions related to Developmental Language Disorder (DLD).

By

Maria Gibbons

This project is submitted in part fulfilment of the HETAC requirements for the award of Master of Science (Health Promotion Practice) Degree.

September 2021

Declaration

Title: Development and delivery of an educational intervention that increased teachers' awareness, knowledge, and actions related to Developmental Language Disorder (DLD).

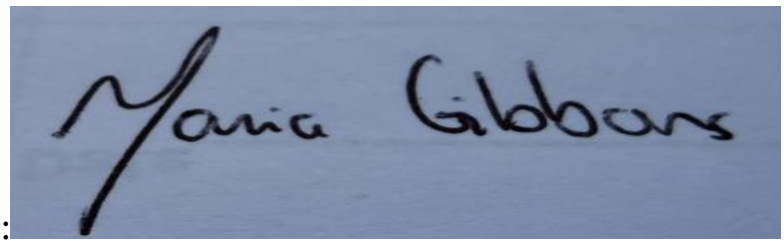
Name: Maria Gibbons.

ID Number: S00202015.

Supervisor: Dr. Karen Coughlan, PhD.

Declaration:

"I hereby declare that this project is entirely my own work and that it has not been submitted for any other academic award, or part thereof, at this or any other education establishment".

Signature: 

Maria Gibbons

Abstract

Background: Developmental language disorder (DLD) is a difficulty learning, understanding, and using spoken language with lifelong implications for education and well-being. It is an under-identified disorder, diagnosed in school age children. Teachers are key to early identification, referral to speech and language therapy (SLT), and better outcomes. This study aimed to co-develop an educational intervention to increase teachers' awareness, knowledge, and actions related to DLD.

Method: It was undertaken within Delivering Equality in Schools (DEIS) primary schools in Ireland. In phase I, children with DLD aged 9-12years (n=7), and teachers (n=7) attended interviews/focus groups to explore their experiences of DLD. In phase II, an educational intervention was developed and delivered to teachers. Surveys to assess awareness, knowledge, and actions were completed pre-intervention (n=102), post-intervention (n=78), and 2-3 months post-intervention (n=37). Referrals to SLT were monitored 3-months pre- and post-intervention.

Results: DLD 'red-flags', and facilitators and barriers to functioning were identified and included in the intervention. The intervention significantly increased teachers' awareness (n=71, $p<0.05$), knowledge (n=71, $p<0.001$), and confidence (n=71, $p<0.001$) post-intervention. Teachers reported an increased use of facilitative communicative strategies 2-3 months post-intervention. There was no significant increase in the number of referrals made to SLT ($p=0.732$), however teachers identified significantly more children as possibly having DLD than the number of referrals they reportedly made to SLT 2-3 months post-intervention (n=37, $p<0.001$).

Conclusion: The co-produced intervention increased teachers' awareness, knowledge, and some actions supporting them in identifying and teaching children with DLD. Further research is required on increasing SLT referrals.

Keywords

Developmental Language Disorder (DLD), teachers, early identification, educational intervention, awareness, knowledge, referral.

Introduction

Developmental Language Disorder (DLD) is a neurodevelopmental condition characterised by language skills that are persistently below the expected level for the individual's 's age.[1] Individuals with DLD can have difficulty learning, understanding, and using spoken language[2] despite otherwise typical development. DLD influences the health, happiness, and achievements of many who live with it.[2] It has significant implications for; literacy, education, social-emotional development, inclusion, employment, involvement in criminal activity, mental health, and quality of life.[3-10] There is no known single cause, but biological, genetic, and environmental risk factors play a part[3,11] with a higher incidence of up to 50%[5] among socially disadvantaged communities.[3-5,13-19] Children from low socio-economic backgrounds and those with special educational needs (SEN) such as DLD are twice as likely to attend Delivering Equality in School (DEIS) schools in Ireland.[13,23,24]

Although, DLD is more common than autism spectrum disorder (ASD), childhood hearing impairment,[2] and attention deficit hyperactivity disorder (ADHD),[3,21] it is largely unrecognised. There is an underestimated prevalence of 6% of children with DLD in Ireland[3,13] with more accurate rates of 7-9% reported in other countries.[22] This underestimated prevalence may be due to the lack of specific statistical records within the Department of Health (DOH) on DLD,[3,13,20] and is compounded by the terminology disparity between DOH and the Department of Education and Skills (DES). While DLD is the term used by speech and language therapists (SLTs)[3] within the DOH, Specific Speech and Language Disorder (SSLD)[23] is used by the DES. Interestingly, the reported prevalence rate of children with SSLD by DES (8%)[23] is higher than the reported rate of DLD in health (6%)[3] indicating a higher prevalence of DLD in Ireland than currently on record.[3,13]

DLD is listed as a 'key health priority'[25] and a public health issue[3,5,14,26-29] within Irish health and education policies and plans.[25, 30-38] However, it lacks the recognition, funding, services, resourcing, and research it warrants[2,39] as reflected in the under-estimated prevalence rate. Not only is undiagnosed, untreated DLD a burden to the individual and their overall quality of life, it is costly to the state. For instance, in the United Kingdom (UK) research revealed that for every £1 (€1.12) spent on SLT for children with communication needs, £6.43 (€7.23) is generated through increased lifetime earnings.[27] Moreover, the annual estimated cost of a child with DLD in Australia is comparable to the cost of childhood Asthma.[39] From this, the estimated cost of DLD in Ireland is greater than €190 million annually. DLD is an expense to health and well-being that requires immediate investment in

Ireland. Through early identification and adequate supports, the costs to the individual and the state can be significantly curbed.

Poor identification of DLD is related to the limited professional and public awareness of the disorder.[6,41] It is a hidden disability that commonly goes undetected by trainee nurses,[42] teachers and psychologists,[43] the public,[44,45] and parents[17,46-48] with poorer awareness among parents from a lower SES.[5,29] Children with more visible difficulties i.e., speech difficulties, stuttering and/or dyslexia are more likely to be identified than children with DLD alone,[47,49-52] with less than one third of children with DLD identified before they struggle to read.[52]

DLD is most often diagnosed by speech and language therapists (SLTs) during the primary level school years,[3,6] but children are not routinely assessed by an SLT, and language screening is not common practice in schools nationally or internationally.[52] Most activities undertaken in the classroom rely on language[53] creating opportunities for DLD recognition. Teacher's awareness, knowledge, perceptions, experiences, identification skills, and/or confidence have been explored in relation to; stuttering,[54] Autism Spectrum Disorder (ASD),[55,56] speech, language and communication impairments,[28,42,44,57-60] delayed language development,[39] and SEN[28,61-65] but not DLD. In these studies, teachers reported limited training,[62,66] resources,[63,65] and confidence in identifying and supporting speech, language, and communication needs (SLCN)/SEN.[57,62] Teachers in the UK stated that they 'never', 'rarely' or 'only sometimes', received the support they needed to teach SEN effectively.[63] The most frequent action among teachers to support SLCN was to make a referral to SLT and modify their communication approach.[61] It is essential that education professionals are aware of DLD[9,14,39,44] to support timely identification, assessment,[35] and intervention to improve outcomes.[3,13,24,26,67-69]

Schools provide a dynamic setting to integrate risk factors and prevention strategies[70,71] allowing for an ecological, whole school approach to health. International research revealed that educating teachers about SLCN[3] increased recognition and onward referral to services,[59,72,73] and providing training increased implementation of facilitative communication strategies in Ireland.[74] Evidence suggests that teachers with adequate education and training, and the school setting are instrumental in identification of DLD. Classroom teachers are the best placed professionals to effect educational outcomes[75-77] and reduce health inequalities among young people.[78]

Therefore, the aims of this study were to develop an effective educational intervention with appropriate stakeholders, deliver it, and measure any change in teachers' awareness, knowledge, and

actions related to DLD. Actions include and herein relate to confidence, use of facilitative communication strategies, and onward referral, unless otherwise stated.

Methods

DLD is prevalent among primary-school age children with a higher incidence among socially disadvantaged communities. For this reason, the research was based on children and teachers in primary-level DEIS schools.

Design

This study employed a sequential, qualitative-quantitative, multi-methods design[79] across two phases to account for key stakeholders' perspectives in service development.[28,80] Phase I was an exploratory qualitative phase to investigate teachers and children with DLDs' experiences of DLD in DEIS primary schools in County Galway. Phase II involved a quantitative investigation of teacher's awareness, knowledge and actions related to DLD. This was measured using surveys completed before (survey 1), immediately after (survey 2), and 2-3 months following (survey 3) a 45-minute educational intervention, a webinar titled 'Developmental Language Disorder (DLD): what every teacher needs to know'. Ethical approval for this research was granted by the Health Service Executive (HSE), Galway University Hospital (GUH) Clinical Research Ethics Committee (Ref C.A. 2378) and Institute of Technology Sligo (ITSligo) ethics committee (appendix 1).

Participants

A purposeful sampling approach was used to select participants that have specific characteristics to allow for the research questions to be answered and was guided by inclusion and exclusion criteria[81,82] **(Table 1).**

In phase I, emails with informed consent sheets (appendix 1) were sent to primary level DEIS schools in County Galway (n=47) inviting interested teachers, and children with DLD to participate. Identification of children who met the inclusion/exclusion criteria was facilitated by the local primary care SLT and schools' SEN coordinators. The sample included seven teachers across two focus groups, and seven children who were interviewed (appendix 1, table 3 & 4).

In phase II, an invitation was sent via email to all primary level DEIS schools in County Galway (n=47) to recruit teachers to partake in the DLD educational intervention. Of a possible 334 primary school teachers, 128 attended the event. The sample was deemed to be largely representative of the population across all demographics except for school location with a lower representation from rural

schools compared to urban schools based on information available.[83] This may be because two urban schools using the webinar as a whole school continual professional development (CPD).

Survey 1 attained a response rate of 80% (102/128) of teachers completed survey 1, while survey 2 was completed by 61% (78/128) of teachers. Survey 1 and 2 responses were paired (71/78, 91%) and analyzed. All educational intervention attendees were emailed 2-3 months after the webinar with a follow up survey (survey 3). Survey 3 was completed by 37 teachers who were matched with survey 1 and 2 (table 2).

Table 1: Participant inclusion & exclusion criteria

Participant group	**Inclusion**	**Exclusion**
Children	• Aged between 9 -12 years. • Primary diagnosis of DLD. • Currently enrolled in a DEIS primary level school in County Galway.	• Aged younger than 9 years or older than 12 years. • Primary diagnosis other than DLD. • Attending a primary level school that is not a DEIS school or in County Galway.
Teachers	• Primary level schoolteachers, primary level school principals, & deputy-principals. • Currently employed by a DEIS primary level school in County Galway.	• Pre-school or secondary level teachers, SNA's. • Currently employed in a non-DEIS primary school or primary school not in County Galway. • Currently employed by a pre-school or secondary level school.

Data collection tools and procedure

The consolidated criteria for reporting qualitative research (COREQ)[84] checklist was completed to ensure transparent quality during phase I (appendix 1, table 5).

Focus Groups

Two separate, once-off focus groups (focus group 1 (FG1: n=3) and focus group 2 (FG2: n=4)) were held with teachers in their place of work facilitated by the researcher. Participants read, signed, and returned the information consent form detailing the research and the researchers background prior to the focus group. The questions were emailed to teachers twenty-four hours prior to the group as requested. Following introductions, participants were given pen and paper as memory aides and were informed that they could withdraw at any time. Teacher focus groups were approximately 60 minutes in duration.

A semi-structured, flexible topic guide was used (appendix 1). It employed techniques such as those outlined by Lyons & Roulstone (2017; 509) (appendix 1).[82,85,86] The topic guides were piloted prior to the research. Participant checking occurred after each individual answer and at the end of the groups. Participants were invited to amend their answer or confirm if the facilitator had captured their answers correctly. All groups were audio-recorded. The facilitator took field notes during all focus groups and audio-recorded reflective memos immediately following each group. These were transcribed for later integration with the transcripts to inform analysis.

Interviews

Children participated in the research following informed parent/guardian written consent and written consent and verbal assent was obtained from the child. It was intended to conduct focus groups with the children[87] however this was not possible due to Covid-19 regulations. One paired interview[88] (n=2) was permitted as the children were in the same class grouping. The pair met twice on the same day, in school and the meetings lasted 20 and 30 minutes respectively. The remaining five children attended semi-structured interviews, four of which were face-to-face, and one of which was completed via a secure online platform (Zoom for professionals). A semi-structured, flexible topic guide (appendix 1) was used and employed the same techniques as the focus group.[82,85,86]

Two meetings were held with the children to establish rapport.[82] During the first meeting the facilitator introduced herself and demonstrated the planned activities. The children created a pseudonym for themselves. They were given a red and green card and told to show the green card if they struggled to understand a task and wanted help or show a red card to withdraw consent.[28,89,90] This was practiced during a trial question in the first meeting. The interview proper was conducted at the second meeting and lasted between 12-20 minutes. A draw-and-tell technique was used to encourage children to engage by reducing the pressure to communicate verbally.[28,90,91]

Surveys

Three self-report, largely, closed-ended surveys were developed[92,93] to elicit information about teachers; knowledge, awareness and actions related to DLD as a validated survey on this topic did not exist. Surveys 1 and 2 underwent two design phases; an initial draft used for piloting and a revised and refined final version. Revision was guided by; phase I of the study, findings from the respondents in the pilot, and feedback from an experienced researcher to inductively develop the final version.[92,94,95] Survey 3, a shorter, 2-3-month post-intervention survey was developed based on surveys 1 and 2 and teacher comments during the live educational intervention webinars, to strengthen the data gathered on any potential change in teacher actions.

Survey 1 and 2 consisted of 40 and 41 questions respectively. Each contained 5 sections: section 1; consent and date, section 2; background details, section 3; awareness, section 4; knowledge of DLD, section 5; actions (appendix 1). These surveys differed for questions 40 which changed from asking the respondent 'How many children have you referred to primary care SLT in the last 3-months?' in survey 1, to 'how informative did you find the webinar on DLD?' in survey 2. Survey 2 included question 41: 'how likely are you to recommend this webinar to friend/colleague?'. Survey 3 consisted of 21 questions across 4 sections: section 1; date and consent section 2: background details, section 3: actions, and section 4: feedback. The feedback section included two open-ended questions about the usefulness of the educational intervention and inviting feedback on the intervention itself (appendix 1). Internal validation of the surveys and educational intervention was partly achieved through content[92,94,96-98] and face[99] validation during piloting and revision.

All surveys were presented using the Microsoft forms application and emailed to the participants pre-intervention, post-intervention, and 2-3 months post-intervention. The link to the pre- and post-intervention surveys was supplied at the start and end of the educational intervention webinar

DLD educational intervention

The content of the educational intervention was based on the presentation provided by www.radld.com 'Developmental language disorder: what every classroom teacher needs to know' and supplemented and amended as needed with phase I findings (appendix 1). The webinar was piloted with 4 primary school teachers and 1 SLT, and amendments were made based on feedback before delivery. Key topics covered included: **Awareness;** what is DLD?, terminology, noticing it: signs and symptoms, red flags, **Knowledge;** prevalence in Ireland, causes/risk factors, impacts: reading, learning, social and emotional well-being, English as additional language (EAL), **Action;** what you can do to address the problem, what you are already doing, referral to primary care speech

& language therapy (SLT), further resources and supports, and questions. The presentation was a live, online webinar[100-102] that lasted between 40-45 minutes with additional time for questions and survey responses. The webinar was run via zoom for professionals, immediately after the school day from 3-4pm across three dates in early December 2020 and two dates in January 2021.

Data analysis

Phase I: qualitative

A framework method approach to data analysis[103,104] was used as it is systematic, flexible, and efficient. A framework approach allowed for; inductive and deductive analysis and for field notes and reflexive considerations to be included.[105] The researcher was aware of her bias as an SLT and was careful to ensure that analysis of the data allowed her to look for both the positives and negatives.

The procedure for analysis went through seven steps:[105]

1. **Transcription**: The data was transcribed verbatim post hoc by the researcher who facilitated the focus groups/interviews.
2. **Familiarity with the data**: Transcripts were read through several times (appendix 2).
3. **Coding**: Codes within cases i.e., participants, were inductively identified. An independent researcher was given a sub-sample of transcription for double coding. These were coded by each researcher independently and decisions were discussed until agreement was reached to enhance inter-rater reliability. Teachers were sent a copy of their transcript and analyzed data to review and amend or confirm if the researcher had captured their stories/comments correctly. This was not done for the children's data as it was felt the children may not be able to comment given that the interpretations were filtered through a framework aimed at professional and academic audiences.[85]
4. **Identifying 'best fit' analytical framework**: The International Classification of Functioning, Disability and Health (ICF) (WHO, 2001) framework was selected as it offered a holistic approach to describing individual's health condition and functioning[28,105] (see figure 1). It describes DLD in relation to functioning and disability under the headings; body structure & function, activities, participation, and contextual factors (environmental factors, and personal factors). It has been used previously to summarise qualitative findings in DLD research.[107]
5. **Applying the framework**: Application of the framework occurred in the following iterative process: inductive coding and deductive charting of each individual teachers comments separately, reviewing analysis across the teachers as a group, followed by a repetition of the

first two steps for the children individually and as a group, and then finally cross-analysis between the groups of teachers and children and charting into the matrix (appendix 2, tables 6-8).

6. **Charting data into the framework matrix**: Comments were coded and mapped into twelve categories under the five themes outlined in the biopsychosocial ICF framework (figure 1).
7. **Interpreting the data**: Analysis across the groups (teachers and children) identified similarities and differences in relation to identified facilitators and barriers to DLD in primary school.[108]

Phase I data gathering was considered complete when no new codes emerged, and all fit into the analytical framework allowing for phase II to proceed in a timely manner.

Phase II: quantitative

Data collected by Microsoft forms was collated in Microsoft Excel and cleaned.[109,110] Data was coded numerically and analysed using SPSS (IBM, 2019)[111] using descriptive and inferential statistics. Data was not normally distributed based on results of the Shapiro-Wilk test ($p>0.05$) therefore non-parametric tests were used. A range of inferential statistical tests were used i.e., Mann Whitney U, and Kruskal Wallis test to analyse differences across demographic groups, and Spearman's Rho to assess correlations. The Wilcoxon-Signed rank test was used to determine significant difference between survey 1 and 2 and between survey 1 and 3 (paired responses). Test results with p-values less than 0.05 were considered statistically significant. Following phase II, data from both phases were combined to identify overlapping categories and themes and outliers and to ensure there were no new themes.[112] This final process guided statistical analysis relating to use of terminology pre- and post-intervention, and correlations between training and confidence, and allowed the data to be reviewed to present a meaningful summary and interpretation of the data.[113]

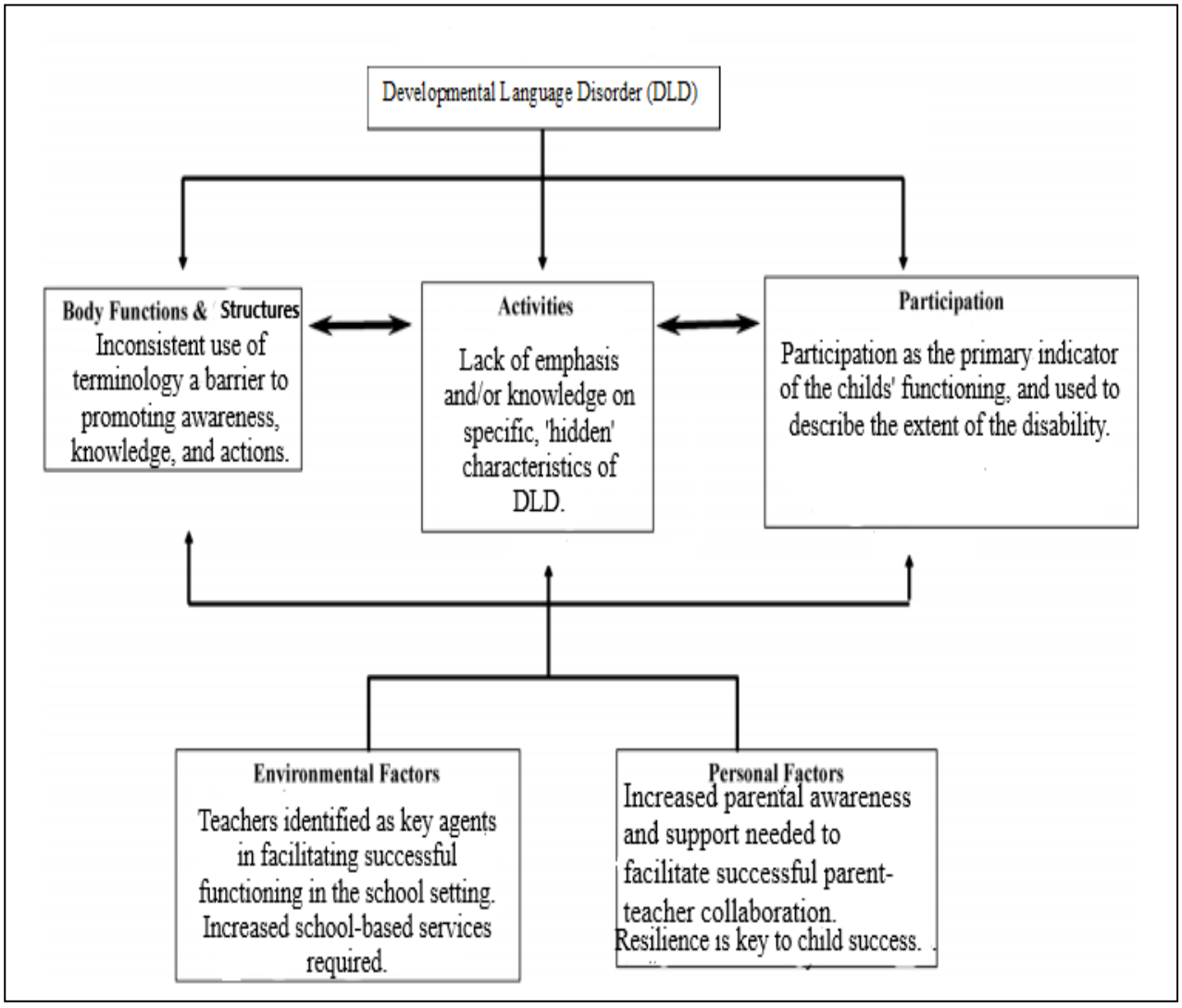
Findings & results

Phase I: Contextual factors as dominant themes influencing the child with DLDs' functioning and disability in the school setting.

The qualitative research was undertaken to identify key themes and issues relating to DLD within the school setting to inform the development of the surveys and educational intervention. Findings gathered were mapped onto the ICF framework[106] (figure 1) and revealed contextual factors (environmental and personal factors respectively) as the dominant themes influencing functioning and disability for the child with DLD within the school setting. These contextual factors were

identified as either facilitators, barriers, or neutral to the child with DLD's functioning and disability (appendix 2, table 9). Functioning and disability themes were spoken about less often with more comments coded under participation than activities, or body structure and function. More comments were gathered from teachers than children which is understandable given that the children all had DLD which can impact negatively on the ability to express oneself through language. Themes, categories, and codes are detailed in the findings in order of those commented on most (figure 2). A representative sample of comments are provided under each theme.

Figure 1: International Classification of Functioning (ICF) (WHO, 2001) framework applied to DLD outlining the five themes and key findings under each theme from qualitative phase I.



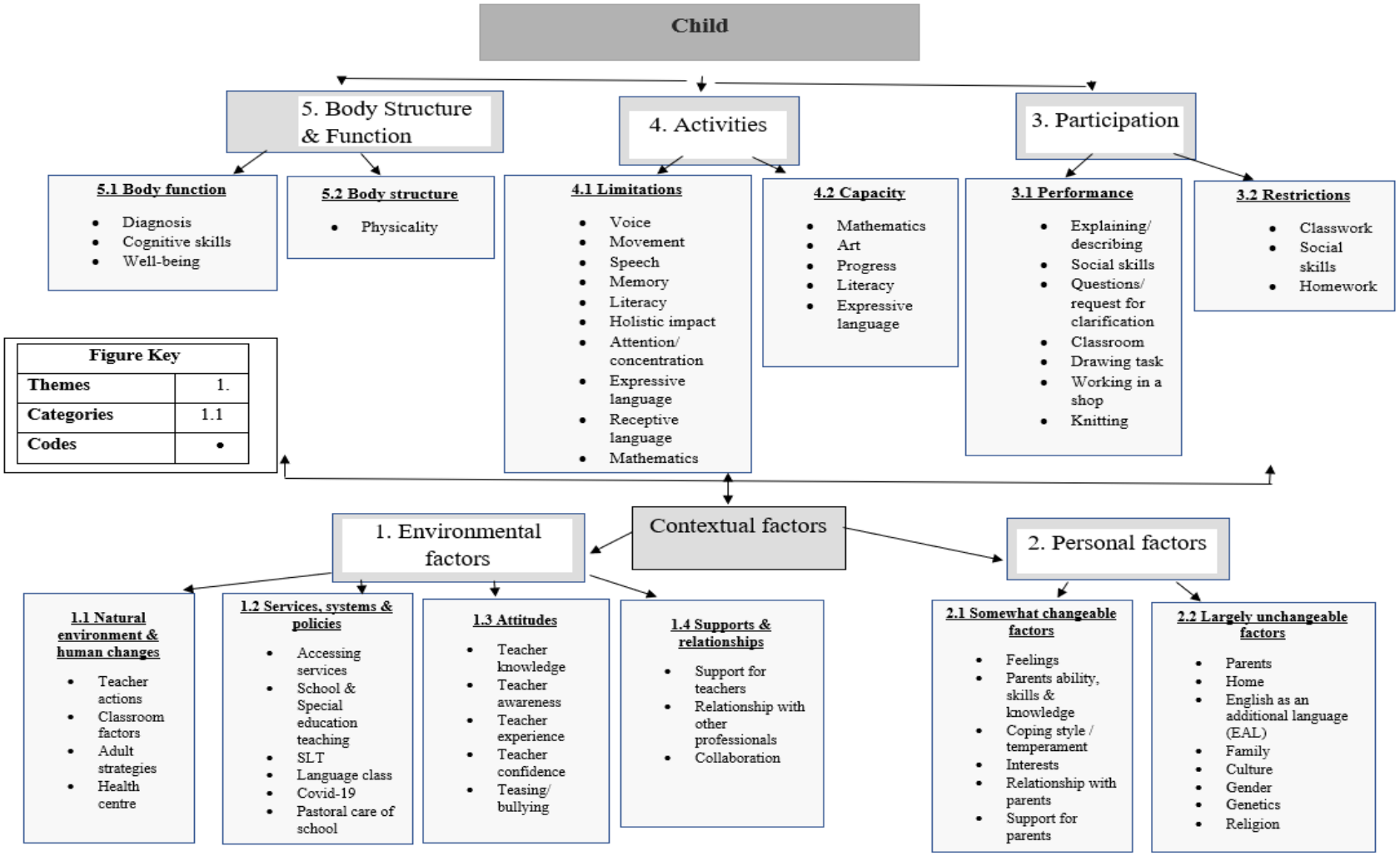


Figure 2: ICF framework outlining each code generated within their category, and theme. Themes and categories are numbered, and codes listed in order of those commented on most.

Theme 1: Environmental facilitators and barriers key to DLD functioning and disability within a school setting.

Environmental factors were the dominant theme for both groups, with teachers generating more comments than children. Most notably, teachers were identified as pivotal to the successful management of the classroom environment and dynamic, and as a support to children and parents. Additionally, the need for increased school-based services was highlighted. Facilitators and barriers to the child with DLDs' functioning and disability within the school setting are outlined under the four categories provided by the framework: natural environment and human made changes, services, systems and policies, attitudes, and supports and relationships and summarized in appendix 2, table 9.

Natural environment and human made changes

Issues related to teacher actions, adult strategies, the classroom, and the health centre setting arose with both groups identifying the important role teachers play in enabling the child with DLDs' functioning in school. Children generated slightly more comments than teachers on this topic with more comments coded as facilitators than barriers.

Teacher actions and adult strategies were coded as predominantly facilitative. Teacher actions identified by the children and coded as facilitators included: getting rewards e.g., cake, dojo points, going outdoors for fresh air, having a calm teacher that does not get cross, and a manageable workload.

'He's really nice. And if we, if the whole class is messing, he still doesn't give us a lot of work' [C4]

The only teacher action identified as a barrier was outlined by children who stated that they did not like being asked/told by the teacher; 'why are you not listening?'/ 'you are not listening!'. Teacher actions identified by the teachers and coded as facilitators included: differentiating the curriculum, teaching social skills, doing art, and making referrals to other professionals.

'I would spend a lot of time doing art, because I think they can get something through there and it relaxes them to be able to speak to you in confidence or to make progress academically if they're happy' [T5]

Adult strategies identified by teachers included: giving the child time to answer, role reversal (let the child be the teacher/leader), visual schedules, and asking the child to repeat back instructions immediately after hearing them.

'using a visual schedule, I saw the value in that' [T6]

Those identified by the children included the teacher repeating the instructions given, and the teacher explicitly giving the child permission to ask for 'help' and to ask for an instruction/demonstration to be repeated.

'He says when we need help just ask him' [C6]

'Em, because when you don't do what M says you ask her 'can you please do that again' [C1]

A facilitating classroom was described as one that was 'caring' and 'quiet', that allowed the teacher to see the individual as part of 'the bigger picture' and a place where the child had friends.

'*the atmosphere in the classroom and the caring has to be number one, the education needs would fall into place if that's there'* [T5]

'*I not like too much people in the class because it get too loud like. Not a lot of people'* [C2]

'Yes. Like no shouting, quietly and I like, my brain is still working' [C1]

Classroom barriers included: a high teacher workload, high language demands, and a noisy room where the child experienced physical discomfort e.g., the sun shining in his/her eyes.

'We have a full curriculum to get through and a full class' [T7]

The children in this study either attended a health centre for SLT or were enrolled in a DLD/SSLD class in their school. All comments related to the health centre were made by the children and were coded as barriers. These included the inconvenience of having to walk to health centre for clinic based SLT, as well as the smell of the building, and the small furniture the child sat at in the clinic room.

'Yeah. I grew up and the desk was like up to my knees' [C1]

'It smells' (the health centre) [C1]

'Yeah, because then you don't have to walk hours and hours to the clinic. You just go to school and like 'A, I'm here', and she's like 'great!' [C1]

In this category, both groups highlighted the important role teachers/adults play in facilitating functioning and in creating a supportive classroom, and children identified the school as a superior setting to the health centre for learning.

Supports, services, and policies

Specific supports and services such as SET, SLT, DLD/SSLD classes and the school pastoral system were viewed positively with some concerns raised about the impact of limited services and Covid-19

regulations. Teachers generated more comments than children with more comments coded as facilitators than as barriers or neutral in this category.

Facilitators to accessing services identified by teachers included the assessment of need process (AON) and knowing what therapist worked in each geographical area.

'He had been seen by the multidisciplinary team for an AON' [T3]

'This was her area as well' (reason SLT in DLD class was able to link in with teacher in relation to other children in the school) [T1]

Barriers to accessing services were more readily identified by teachers and included lack of services, number of limiting prerequisites to a child being accepted by services, gaps in services e.g., staffing, and services being clinic-based rather than school based.

'All the different kind of prerequisites before he accessed (name of service)' [T3]

'When the service isn't there…then you're in trouble' [T2]

'we hear some of the professionals, they're out and they're not replaced' [T4]

'It's a home service rather than a school service…where the child is eighty percent of the time' [T7]

Two children highlighted that a cash incentive would be nice as a reward for attending school, highlighting that they viewed it as 'hard work'.

'Oh yeah. We should. We should get money for going to school' [C1]

SET was described in a positive light by both groups, with facilitating factors described by teachers as having the opportunity and time; to work on oral comprehension, read reports, and give attention to the child.

'We do some math and English and normally on Friday we play' [C6]

'They would work an awful lot on comprehension' [T1]

'For a lot of them it's the only bit of time and attention they get' [T7]

One barrier to SET outlined by teachers was when a child's progress remained very slow despite input.

'We found the progress very, very slow and the targets very, very, very, you know, having to review and maybe go back a step regularly' [T3]

While the health centre was viewed negatively from the children's perspective, both teachers and children appreciated SLT input. SLT was viewed by teachers as most facilitative when therapists

came into the school to provide therapy to the children and one teacher wondered if SLTs were based in schools would children receive more therapy.

'In school therapy is great' [T5]

Several children identified that SLT facilitated them in learning how to talk and mentioned not having enough SLT as a barrier.

'My other teach- speech and language teacher taught me some words' [C5]

'I didn't really get to do it that much this year. This year, I hope, I know I'll do it' (SLT) [C5]

DLD/SSLD classes were identified as a predominantly facilitative service by teachers and children. Participants outlined that this was where children got more SLT support, made progress, there were no transport issues to get to SLT, and the teacher had an opportunity to really get to know the child.

'the children were brought on so much because they had access to a speech and language therapist every single day' [T1]

'first when I was in this school, I didn't know how to talk, and I didn't know they talking about and it blehblehbleh. Then I had speech and language first and word sheep' [C2]

One barrier identified by one child was that he was separated from his friends for two years while he was enrolled in the language class.

'Except for first and second (class). I go to a different classroom…so I had to wait two years to meet them (friends) again in third class' [C4]

Covid-19 was identified by the children as both a facilitator and barrier. On one hand, it provided increased opportunities for the students to take breaks/walks outdoors and for each child to have their own space/table in the classroom. On the other hand, the wearing of face masks made it more difficult for children to read the teachers facial expression.

'We really can't see from the mask' (if teacher is smiling) [C2]

Covid-19 was coded as a barrier for teachers who mentioned the unavailability and lack of service due to the redeployment of SLTs.

'because any child I've tried to follow up on, the SLT is out Covid testing and they've said, you know, they have no idea when they will be actually back to work' [T2]

Pastoral care of the school was described by the teachers as a facilitator that allowed the school community to take a collaborative approach to the child with DLD, and to monitor development across different school situations over time.

'Pastoral care of the school is so important' [T3]

'Awful lot of good people in the school' [T3]

'We were trying to do as much as we can here' [T4]

In this category, both groups identified the supports and services that are working well but highlighted the need for more, improved access to them, and for them to be school based.

Attitudes

Attitudes were the thoughts, feelings, and behaviours of the teacher and/or child surrounding DLD in the school setting. Issues discussed included teachers' knowledge, awareness, experience, and confidence, with children speaking about bullying/teasing. Teachers generated majority of the comments with slightly more coded as facilitators than as barriers within this category. Facilitating attitudes included teachers knowing about the child's specific skills and needs e.g., speech sound to work on, teachers' awareness that DLD has a big impact on participation and learning, and teachers being confident and reassured in their work because of experience and support.

'I continued on with doing some research myself in the whole area of speech and language' [T4]

(DLD/SEN) *'It's such a big part of teaching'* [T6]

Attitudinal barriers identified by teachers included having a lack of confidence, experience, training, and knowledge in relation to DLD.

'*I just felt totally at sea I didn't know what to do'* [T2]

'it's not taught in college' (DLD) [T6]

'it was my first experience of special needs' [T2]

Attitudinal barriers highlighted by children related to being picked on or laughed at by siblings or peers.

'And that when everyone making fun of me and I get laughed at' [C1]

Teachers and children identified attitudes that impacted on their self-identity and confidence. Teachers identified their own levels of knowledge, awareness, experience, training, and confidence working with children with DLD as factors that influenced their teaching practice. While children

were more concerned with the views of their peers and siblings. With both groups there was a sense that they were uncomfortable when they lacked confidence.

Supports and relationships

Supports for teachers, good relationships with other professionals, and collaboration were discussed as central to good teaching practice. All comments were made by teachers with more comments coded as facilitators than barriers in this category. Facilitatory support for teachers included having regular communication with professionals e.g., receiving regular check-in phone calls, having a contact number for the relevant professional and knowing that if a message is left the call will be returned, therapy techniques being demonstrated, and receiving practical resources.

'I think it's important that there is somebody at the end of the phone that can say 'that's great stuff, that will be normal for at child at that level, keep doing it and come back to me in another couple of weeks'' [T3]

'I still use like loads of the materials that they gave me then, like the 'Rhodes to Language', like the 'Clip Semantics'' [T6]

'It was very supportive, which when she took the group sessions' [T4]

Conversely, having limited or no contact from professionals e.g., only being given a '*programme*', and professionals making individual recommendations that are not suitable for a class/school environment were identified as barriers.

'And while it's practical, some of their suggestions for the one, that one within the whole set up might not be practical' [T5]

Relationships with other professionals were deemed facilitatory if; teachers had time to build rapport with the services, and professionals had patience and acknowledged the new learning involved for the teacher in dealing with specific SEN.

'T was always very patient with me'[T4]

'*Rapport that we built with different services over time'* [T3]

Negative, confrontational multi-disciplinary meetings that were seen to undermine the work of the school and parents were recognized as barriers to relationships with other professionals.

'I just felt all these meetings were undermining all the work the parents were doing and I was doing' [T3]

Successful collaboration was viewed as teachers having the opportunity to work with and alongside other teachers and professionals while the teachers' opinion not being valued as 'valid' was a barrier.

'It was the class teachers'; it was the support teachers and everyone working together' [T3]

'There were social workers, family support and we gathered several times to try and sort out the problem' [T5]

'Sometimes, like the teacher's opinion isn't as valid' [T6]

Consistent, clear, and appropriate communication within a collaborative relationship built over time was outlined by teachers as key to ensure that they felt adequately informed and reassured in their teaching practice with children with DLD.

Environmental factors were identified as key to the child with DLDs' functioning and disability in school with teachers playing the most significant role. Services and supports already aligned with the school were deemed to be working well, but more regular, school-based supports are required to ensure teachers are adequately equipped in their teaching practice with children with DLD.

Theme 2: Personal factors influence school life for the child with DLD

Personal factors were the second most discussed theme and identified personal facilitators and barriers that influenced school life for the child with DLD (appendix 2, table 9). Personal factors revealed the need to provide accurate information and support to parents and teachers on DLD, and on the actions needed to be taken at home and in school. As may be expected, children provided slightly more insight into personal factors than teachers. Children identified more facilitators, while teachers identified more barriers under this theme. Marginally more facilitators than barriers were documented overall. Codes fell into two categories provided by the framework: somewhat changeable factors and largely unchangeable factors.

Somewhat changeable factors

Positive, mutually supportive relationships between parents and teachers, informed and skilled parents, and the child having interests and resilience were highlighted as facilitators to the child with DLDs' functioning and disability in school. Children generated marginally more comments in this category than teachers with more comments coded as facilitators, than as barriers, or as neutral. Interests and feelings were generated mostly by children. Positive feelings e.g., happiness, feeling great, and hobbies and interests e.g., shopping, reading, Lego, drawing, the outdoors, knitting were identified as facilitators.

Shopping [C6]

'Happy' (doing art) [C5]

While feelings with negative connotations e.g., anger, annoyance, and feeling weird were coded as barriers. Teachers did comment on the frustration they felt at the lack of services and supports available to children with SEN/DLD and to them as teachers.

'Sad and angry' (when teacher says I am not listening) [C2]

'Frustration at not getting the different things that they need' [T3]

Relationships with parents, parents' abilities, skills and knowledge, and support for parents were codes generated by teachers. Parents having similar views/concerns as the teacher was viewed as facilitating teachers' relationships with parents. Conversely, parents having differing views to teachers in relation to the child, and not agreeing to their child being referred to services were barriers. Parent related barriers where when parents were unable to make and/or keep appointments, and when they had significant social issues that impacted on the home functioning and the child welfare. The lack of support or advocacy available to parents in fighting for, and in coordinating the services their child needed was identified as a barrier.

'That's half the battle just to get parents on board first' [T2]

'I just thought she needed an advocate with her at appointments because… she wouldn't be able to tell me, you know, she wouldn't be to relay back that information' [T1]

'It's a minefield out there…if you have a child with special needs' [T1]

Coping-style/temperament was mentioned by teachers and one child. A facilitating coping-style/temperament was described by participants as a child demonstrating determination, survival skills, knowing how to regulate their feelings, and possessing self-belief.

'Well at home, I slam the door so I can be like calmer. Then at school, I normally just don't talk to people' (if feeling cross) [C6]

While naivety and lack of interest and/or motivation were coded as barriers.

'Older kids were taking advantage of him, telling him to do different things and he would get into trouble' [T3]

These somewhat changeable factors address the need for interventions on parent-teacher collaboration, parent education and support, and promoting interest and resilience among children with DLD. They pinpoint areas for future intervention to support combined impairment and environment focused approaches.

Largely unchangeable factors

Within the largely unchangeable personal factors, supportive parents, family, and home were viewed as somewhat facilitative, while English as an additional language (EAL), gender, and genetics were potential barriers. This category generated more barriers than facilitators or neutral comments, with children tending to highlight the positives and teachers the negatives associated with issues beyond their control.

Culture and religion were neutral to the child with DLDs' functioning and disability. Parents were identified by children as being largely facilitative in that they provided help with learning and taught them skills e.g., how to knit.

'My mother helped me a lot' [C4]

Children commented how they did not like it when their parents got cross or reprimanded them.

'Oh, please don't get me started. Just because I made something fell, my dad literally grounded me from my x box' [C1]

Family was identified by one child as a barrier. She reported that her sister was always bossing her around and telling her what to do which impacted on her negatively at home. Home was commented on differently by teachers and children. Teachers identified the barriers and difficulties associated with home life e.g., difficult social circumstances, lack of transport to attend appointments.

'He was doing, was being parents at home and taking on that responsibility for himself and his younger brother' [T4]

While children commented on the facilitating factors related to home such as having their family, their belongings, and their own space within that setting.

'Because I don't have to do any work and I can be on my own and I can do anything for myself' [C4]

EAL was commented upon as presenting barriers by both teachers and children. Teachers found that a child who had EAL may be disadvantaged as it was harder for the school to; communicate clearly with the parents, and identify the presence of any SEN/DLD.

'Children who come from a home with two language, they blame it on 'oh they just can't speak English but that often isn't the case they're having difficulties in their other language as well' [T1]

One child reported that he did not have any English until he started school, he viewed this negatively as it made him feel '*weirdly*'.

'No, I never knew how to speak English until I started going to school… really weirdly, a weird feeling' [C4]

One facilitator was identified by a teacher who commented on the ability of an older sibling to act as a translator between school and parents.

Culture and religion were viewed in a neutral light by participants. Comments stated the child's religion, nationality, or parents' country of origin as a fact.

'Our class is celebrating the holy communion because people made it, but I didn't, because I do different religion' [C5]

'Mom was from a different country' [T3]

Gender and genetics were identified by teachers as risk factors for SEN/DLD with comments recognizing that boys, and those with a family history of SEN were at greater risk.

'Maybe it's a genetic thing' [T2]

While views on gender and genetics relate to what is known about the etiology of DLD in the literature, the discussion surrounding EAL and DLD highlighted the similarities in the two presentations within the school setting. This highlighted the need for education on differential diagnosis and identifying DLD for the child with EAL.

Theme 3: Participation in school as an indicator of the child's self-identity and DLD

Participation was the third most discussed theme and was divided into two categories i.e., performance and restrictions, based on the child's ability to be involved in a life situation within his/her environment (WHO, 2001). Significant weight was given to child's level of participation as an indicator of the extent of his/her disability by both groups, with performance viewed positively and restrictions viewed negatively.

Within performance, comments relating to classroom engagement and social skills were identified by teachers and children. Children gave the most comments here and included codes that specifically demonstrated or referred to the child actively engaging in tasks such as explaining/describing and knitting. The children tended to speak more about what they could do rather than what they could not do.

'One time I got two letters right' [C5]

'19, I have (dojo points)' [C7]

This contrasted with the teachers who made fewer comments on children's performance and more comments on restrictions than children.

'he would partake in some of the work and engage' [T4]

Within restrictions, comments related to difficulties with classwork and homework were made by teachers and children. Teachers gave the most comments within restrictions and were the only group to highlight the impact of DLD on social skills. Restrictions were noted by teachers to be 'red flags' for DLD.

'It was much harder for him to participate in class discussions' [T1]

'*He finds it very hard to follow rules and wait for his turn…he has no friends'* [T2]

'You have to wonder why are they not (participating)? Are they not understanding me? Are they not able to process what I'm saying? did they not have the language to actually talk back to me? Or that they just don't have the interest?' [T1]

Participation was identified as the primary indicator of the child's functioning by both groups. The children saw it as a measure of their ability, while the teachers used it to define the extent of the child's disability. Interesting points to consider when speaking explicitly with these groups about DLD in the school setting.

Theme 4: Activities related to DLD can be 'hidden'

Activities were the fourth most discussed theme and divided into two categories i.e., capacity and limitations. These were tasks or actions related to the education curriculum, and speech and/or language skills that were identified as something the child could or could not do, with a greater emphasis placed on observable skills. Activities identified were those most evident in the classroom but were not discussed in detail or with the same regard as participation.

Within limitations aspects of speech, memory, receptive language, and literacy skills were identified by participants as areas of need for the child with DLD. Teachers made more comments about the more visible limitations related to speech, memory, expressive language, and literacy skills than more hidden oral (receptive) language limitations.

''I don't know', that was his response to everything' [T3]

'Has very, very bad pronunciation' [T2]

Children commented on their individual limitations related to; attention/concentration and mathematics.

‘*And sometimes I can’t really focus’* [C5]

Within capacities, art, mathematics, and ability to make progress were identified as areas of strength by both teachers and children, with most comments made about abilities in mathematics and art. Teachers also commented on the observable skills related to expressive language and literacy.

‘*he would lose himself in art and while he was doing anything with his hands’* [T5]

‘if my brain is turned on, I kind of get them all right’ (mathematics) [C1]

‘We never got teached, I just did it on my own’ [C4]

SLTs commonly describe DLD by outlining the impairments in activities children may experience. However, these were not a priority conversation point for the teachers or children in this study. This gap in discussion showcased the lack of emphasis and/or knowledge on the specific, often ‘hidden’, language skill deficits associated with DLD and their impact on the child in the school setting. This highlights the need for SLTs to promote increased awareness and knowledge of activity level impairments related to DLD.

Theme 5: Body structure and function used to classify DLD

Teachers and children referred briefly to the body’s physical structure and function in relation to SEN/DLD in attempt to describe or classify it at the impairment level. Teachers generated more of these comments than children. Within body function teachers and children referred to cognitive skills for children with DLD in a positive light while recognizing the impact of DLD on the individuals’ well-being.

‘It was obvious that he was very bright’ [T5]

‘*Because I do it in my head, I do it in my brain’* [C1]

‘it was affecting his well-being’ [T2]

‘You can see him getting a bit down’ (because he cannot participate like peers) [T2]

Teachers used a range of descriptive terms and labels i.e., SSLD, S/SLI, and DLD, while children did not.

‘Severe receptive language delay’ [T3]

‘Speech and language difficulties’ [T7]

One of the seven children had heard the term DLD before, four were able to describe it relative to their own experience, but no child used the term DLD.

'When I was younger, I didn't really know how to talk that well' [C5]

For body structure, participants noted the role of 'muscles', body parts and physique in facilitating/impeding activities. One teacher commented on the facial expressions of a child as he processed language.

'*He is so lethargic'* [T2]

'And you could nearly see it, like, in him, like if you'd say something, you could see him trying to process it in his head on his face'. [T7]

The main finding in this theme, was the inconsistent use of terminology for DLD indicating the need for a common understanding and term across professions to support its increased awareness and identification.

Overall, the themes activities and body structure and function were not referred to often, suggesting that teachers and children with DLD are participation and contextual factor lead rather than impairment focused. This is significant as many traditional SLT interventions are impairment focused[101] providing support for more holistic approaches to intervention that include in-school participation and environmental factors.

Findings that informed Phase II

Key findings from each theme (see figure 1) informed the development of the surveys and educational intervention. Environmental factors emphasized teachers as fundamental to facilitative actions related to DLD in the school setting. This theme highlighted support and training as crucial to teachers' confidence in identifying, referring, and teaching children with DLD, indicating the need to measure these. Facilitative actions and strategies identified were included in the educational intervention to provide reassurance and measured 2-3 months post-intervention. Personal factors revealed the role parents can play in inhibiting referral to services such as SLT, underlining the need to capture teachers' identification of DLD, as well as number of referrals made to SLT. Additionally, they gave insight into teachers' knowledge of DLD in relation to cause and prevalence, and highlighted EAL as a perceived barrier, an issue that was measured in the pre- and post-intervention surveys and addressed in the educational intervention. Participation level discussion described DLD as it presents within the classroom setting which informed the 'red flags' section of the educational intervention. Activity level findings suggested that specific language difficulties such as oral (receptive) language

evident in DLD are difficult to observe and quantify in a classroom setting. This informed the explicit description of the language deficits associated with DLD in the educational intervention. Body structure and function findings relayed the inconsistencies with terminology surrounding DLD. The various terminology was defined and explained in the educational intervention and measured in the surveys.

Phase II: Increased awareness, knowledge, confidence, and use of facilitative communication strategies but no increase in referrals to SLT

The quantitative results investigated if the educational intervention was successful in increasing the teachers' awareness, knowledge, and actions (confidence, use of facilitative communication strategies, and onward referral to SLT) related to DLD as measured on the three surveys (see table 2) and by monitoring referrals to primary care SLT. Additionally, the impact of demographic factors on pre-intervention and post-intervention measures were analyzed.

Results revealed that attending the educational intervention webinar on DLD significantly increased teachers' awareness, knowledge, and confidence related to DLD on measures used (see figure 4) and teachers reported an increase in their use of facilitative communication strategies 2-3 months post-intervention. However, there was no significant increase in referrals made from DEIS primary schools in county Galway to primary care SLT across the research time frame. Certain demographic factors had a positive influence on teachers' awareness, and confidence on the pre-assessment. These included being older, having a greater number of years teaching, a greater number of year teaching in a DEIS school, working in a rural school, and holding a specialist role i.e., SET, or special class teacher. Interestingly these demographic factors were less significant on the post-intervention measures suggesting that the educational intervention was effective in aligning awareness and confidence between the groups. While working in a rural school was the only demographic factor that positively impacted on teachers' knowledge pre- and post-intervention.

Table 2: Phase II: Survey participant details

Demographics	**Survey 1 (n=102)**	**Survey 2 (n=78)**	**Paired (n=71)**	**Survey 3 (n=37)**
Gender				
• **Male**	16 (15.7%)	12 (15.4%)	11 (15.5%)	5 (13.5%)
• **Female**	86 (84.3%)	66 (84.6%)	60 (84.5%)	32 (86.5%)
Age				
• **21 – 30 years**	16 (15.7%)	14 (17.9%)	14 (19.7%)	4 (10.8%)
• **31 – 40 years**	30 (29.4%)	20 (25.6%)	19 (26.8%)	7 (18.9%)
• **41 – 50 years**	36 (35.3%)	31 (39.7%)	25 (35.2%)	14 (37.8%)
• **51+ years**	20 (19.6%)	13 (16.7%)	30 (18.3%)	12 (32.4%)
Country of teacher training				
• **Ireland**	95 (93.1%)	72 (92.3)	67 (84.4%)	36 (97.3%)
• **United Kingdom**	7 (6.9%)	6 (7.7)	4 (5.6%)	1 (2.7%)
Number of years teaching				
• **0 – 10 years**	30 (29.4%)	21 (26.9%)	23 (32.4%)	6 (16.2%)
• **11 – 20 years**	38 (37.3%)	30 (38.5%)	24 (33.8%)	13 (35.1%)
• **21 + years**	34 (33.3%)	27 (34.6%)	24 (33.8%)	18 (48.6%)
Number of years teaching in a DEIS primary school				
• **0 – 10 years**	37 (36.3%)	30 (38.5%)	29 (40.8%)	11 (29.8%)
• **11 – 20 years**	42 (41.2%)	30 (38.5%)	24 (33.8%)	14 (37.8%)
• **21 + years**	23 (22.5%)	18 (23.1%)	18 (25.4%)	12 (32.4%)
School location				
• **Rural**	24 (23.5%)	18 (23.2%)	6 (22.5%)	6 (16.2%)
• **Urban & suburban**	78 (76.5%)	60 (76.8%)	55 (77.5%)	31 (83.8%)
Current role				
• **Mainstream class teacher**	55 (53.9%)	44 (56.4%)	43 (60.6%)	17 (45.9%)
• **Special class teacher**	4 (3.9%)	3 (3.8%)	2 (2.8%)	2 (5.4%)
• **Special education teacher (SET)**	36 (35.3%)	26 (33.3%)	21 (29.6%)	14 (37.9%)
• **Other e.g., principal**	7 (6.9%)	5 (6.4%)	5 (7%)	4 (10.8%)

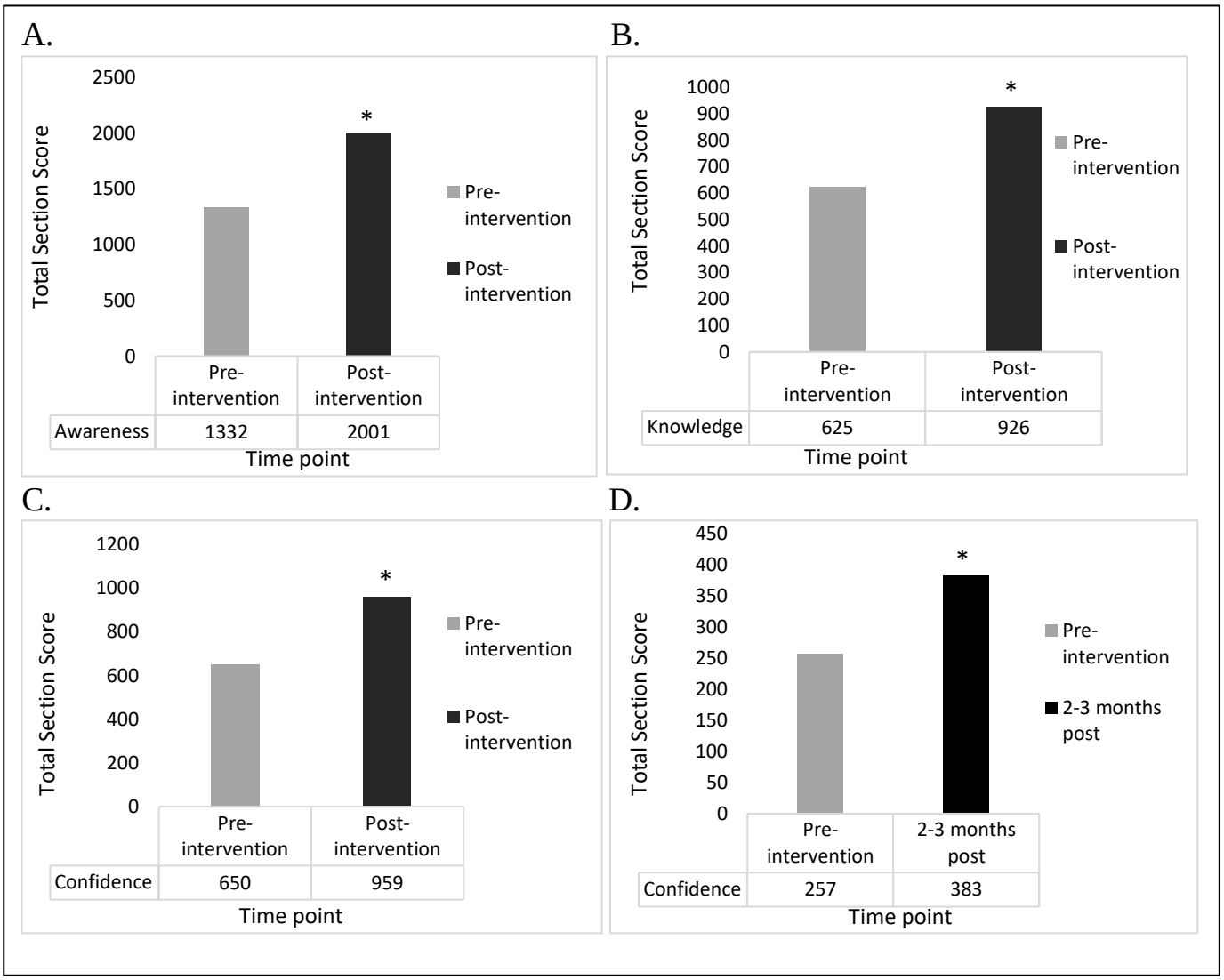


Figure 4: Increase in awareness, knowledge, and confidence scores. Data is presented as the total section score measured by surveys 1 (pre-intervention), 2 (post-intervention), and 3 (2-3 months post-intervention) and analysed by the Wilcoxon-signed rank test. (A.) Increase in awareness scores post-intervention ($n=71$, $p<0.05$). (B.) Increase in total knowledge score post intervention ($n=71$, $p<0.001$). (C.) Increase in confidence scores post-intervention ($n=71$, $p<0.001$). (D.) Increase in confidence scores maintained 2-3 months post-intervention ($n=37$, $p<0.005$).

Increased awareness of DLD

This section questioned teachers on their awareness of DLD, use of terminology, amount of training received, and how informed they felt on the topic. All ten questions asked in the awareness section showed a significant increase post-intervention ($n=71$, $p<0.05$) indicating an increase in teacher's awareness of DLD following the intervention on the measures used (appendix 2, table 10). Specifically, teachers reported an increased use of the term DLD, and highlighted the absence of

training on the topic. Furthermore, teachers recognized the educational intervention as beneficial training in helping them to feel more informed about DLD.

Teachers used a range of terms and descriptive labels for DLD in phase I with one teacher stating that '*SSLD is the term we use'*. The pre- and post-intervention surveys revealed similar results with a significantly greater use of the term SSLD reported over DLD and SSLI (n=102, p=0.001). However, there was a significant increase in teachers reported use of the term DLD from pre-intervention to 2-3 months post-intervention (n= 37, p=0.004). In the 2–3-month post-intervention survey, four teachers commented that they found the explanation of terminology in the webinar useful e.g., '*liked the definitions and how to recognize them'*, '*outlined clearly what DLD is and its relationship to the other acronyms we use'*, and *'clarified what is meant by DLD*'.

Training and information received on DLD, and lack thereof was documented in phase I and measured in phase II.

> *'And I felt like in college anyway there wasn't too much that I learned about SEN. Like I didn't have a clue what DLD was. I really didn't. I'd say we had one module on it, one lecture'* [T6]

This comment was reflected in pre-intervention results, where teachers were found to have 'little' or 'no' training on SSLD or DLD (86.1% and 94.1% respectively) and with 87.6% of teachers reported to have 'no' or 'little' information on DLD. There was a significant increase reported in training received post-intervention on SSLD (n=71, p<0.001) and DLD (n=71, p<0.001) indicating that teachers recognized the intervention as training on SSLD/DLD. For some it was their first-time hearing about DLD, '*highlighted the condition for me, was unaware of the details before'*, while another found it '*a very good refresher of previously attended courses'*. One teacher commented that she liked that it was provided online '*very easy to attend'*.

On the 2–3-month post-intervention survey teachers commented that '*lots more information is needed to increase awareness'*, *'it should be disseminated to other schools'*, and '*delivered to class teachers as they often feel it's up to the SET to 'fix' the child, and don't see the potential of classroom activities'*. Comments were made on how the intervention '*allowed us to question ourselves on our teaching…to take a step back…to focus on the best way of facilitating them in their learning'*. Teachers described the intervention positively, as '*very informative, 'useful', 'enjoyable', 'enlightening', 'helpful for identifying and referring students*' on the 2-3-months post-intervention survey. The method of delivery, the presenters name, and opportunity given to teachers to ask/answer questions during the live webinar were highlighted in the word cloud suggesting a preference for live, interactive over pre-recorded educational interventions (appendix 2, figure 6). One teacher wrote that

she *'would have no hesitation in recommending it'*. This is supported by results from the post-intervention survey, which indicated that 74.4% were extremely likely to recommend the intervention, with another 15.4% quite likely, and 7.7% somewhat likely to recommend it to a colleague or friend.

The educational intervention was successful in increasing measures of awareness including teachers' use of the term DLD and welcomed as a suitable training on DLD in the school setting.

Increased knowledge of DLD

This section questioned teachers on facts and myths associated with DLD in relation to, aetiology, prevalence, presentation, and comorbidities. All fourteen questions asked in the knowledge section showed a significant increase post-intervention (n=71, $p<0.05$), as did the total knowledge score post-intervention (n=71, $p<0.001$) indicating a significant increase in teachers' knowledge of DLD on the measures used (appendix 2, table 11). The greatest change in mean score from pre-intervention (survey 1) to post-intervention (survey 2) was on aspects related to aetiology (questions 21 & 24), prevalence (question 22), and EAL (question 32) (see figure 5).

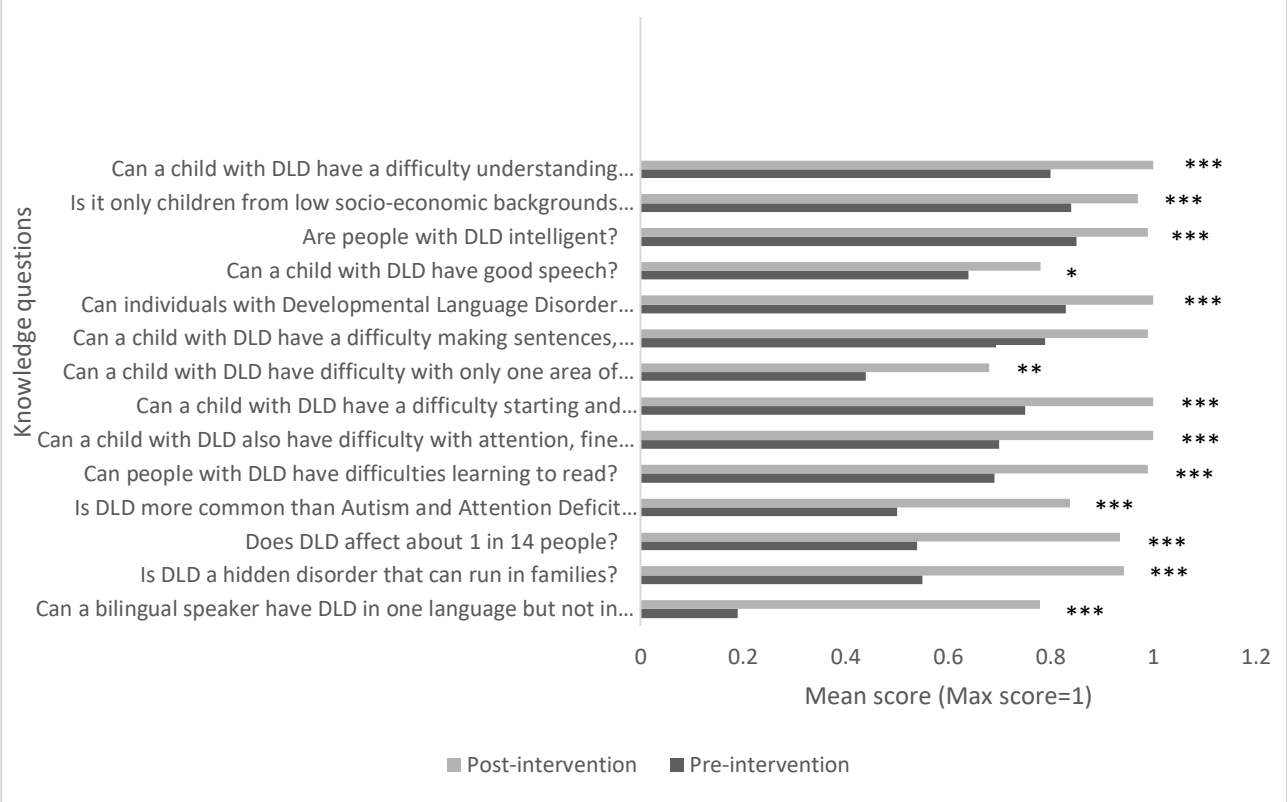


Figure 5: Significant increase in all knowledge questions. Data presented as mean scores measured by survey 1 (pre-intervention) and survey 2 (post-intervention) and analysed by the Wilcoxon-signed rank test (n=71, $p<0.05$). *$p<0.05$, **$p<0.01$, ***$p<0.001$.

Specific facts and uncertainties related to DLD identified in phase I were measured in phase II (appendix, table 11). Teachers demonstrated some corresponding strengths and gaps in knowledge related to DLD across both qualitative findings and quantitative results. In the qualitative findings, teachers questioned cause and prevalence of DLD, and commented on the role of genetics. On the pre-intervention survey, teachers scored lower (mean and median) scores on questions related to cause and prevalence than on other questions indicating a lack of knowledge in this area. On the 2-3-months post-intervention survey, two teachers commented that they did not realize how '*common*' DLD is, and another reported the information on genetics as '*interesting*'.

In the qualitative findings' teachers viewed EAL as a barrier, and on the pre-intervention survey, attained a lower (mean and median) score on the question 'Can a bilingual speaker have Developmental Language Disorder in one language but not in another?' than on other questions, confirming the uncertainty in relation to DLD and EAL. In phase I, teachers identified the holistic impact of DLD on well-being, that children with DLD are '*bright*' and can make progress and pre-intervention, scored higher (mean and median) scores on questions 30, 33, and 34 (survey 1) in comparison to other questions. One teacher reported that she found it useful '*hearing about the different ways DLD can affect children*'.

The educational intervention succeeded in increasing teachers' knowledge particularly in areas of uncertainty such as prevalence, aetiology, and EAL.

Increased confidence

The questions in this section of the surveys measured teacher's confidence in identifying and teaching a child with DLD, and in recommending, and making a referral to SLT. This was done across three timeframes: pre-, post-, and 2-3-months post-intervention. There was a significant increase in scores on the four confidence questions asked post-intervention ($n=71$, $p<0.001$) which was maintained 2-3-months post-intervention ($n=37$, $p<0.005$), indicating a significant increase in teachers' confidence in actions related to DLD following the intervention on measures used (appendix 2, tables 12 & 13).

Teacher confidence was identified as a facilitator to teaching children with DLD in phase I and measured in phase II. Qualitatively, teachers spoke about how supports including training and reassurance impacted on their confidence. This was mirrored in the significant positive correlations between training received (on SSLD & DLD combined) and scores on confidence questions: identifying and working with DLD pre-intervention ($n=102$, $p=0.001$), on all confidence questions post-intervention ($n=78$, $p\geq0.004$), and on the change score between pre- and post-intervention for identifying DLD, working with DLD, and the referral process to SLT ($n=71$, $p\geq0.038$) (appendix 2,

table 14). On the 2-3-months post-intervention survey, two teachers specifically reported that the training increased their confidence in their ability to identify a child with DLD '*it gave me more confidence to identify a child who might have DLD'*.

The educational intervention was effective in increasing teachers self-reported confidence for actions related to DLD which was maintained 2-3 months post-intervention. This has potentially positive implications for teachers in their identification, referral, and teaching of children with DLD.

Increased use of facilitative communication strategies

Facilitative actions and strategies identified in phase I were included in the educational intervention and measured 2-3-months post-intervention. This was done to capture change in actions related to DLD post-intervention, specifically the impact of the intervention on differentiation/teaching practice, and frequency in use of facilitative communication strategies. Majority of teachers reported that the intervention impacted on their teaching practice and identified an increased use of facilitative communicative strategies such as those that support the child with DLDs' more hidden, oral (receptive) language difficulties.

Most of the teachers who responded to survey 3 (n=37) reported that attending the intervention impacted on their differentiation/teaching practice either 'quite a bit' (16.22%) or 'a great amount' (8.11%), with majority acknowledging that the intervention impacted 'somewhat' (64.86%) on their differentiation/teaching practice. Teachers identified the specific strategies they used more post-intervention from the selection of fourteen listed (see figure 7). Strategies that facilitate oral (receptive) language were amongst those used more frequently i.e. slowing my rate of speech when giving instructions (identified by 28/37 teachers, 76%), repeating instructions (identified by 27/37 teachers, 73%), using simpler language in my instructions (identified by 27/37 teachers, 73%), breaking verbal instructions down into shorter sentences (identified by 26/37 teachers, 70%), and giving children more to time to answer/ask questions (identified by 26/37 teachers, 70%). Teachers commented that they already used some of the strategies outlined but were more aware of the range of strategies available to them, and the importance of using them for children with DLD. Other strategies mentioned by teachers included: speaking to parents about speech/language, working with the parent and child on a reward system, creating specific resources, spending more time on vocabulary, providing one-to-one sessions, watching out for the 'quiet child' and having differentiated expectations from children with DLD.

Although the use of facilitative communication strategies was not measured pre-intervention, teachers reported that they used the simple, effective strategies more often 2-3-months post-intervention. This indicates that the educational intervention was successful in supporting differentiated teaching practice by promoting the range and use of facilitative communication strategies available to teachers when communicating with children with DLD.

Figure 7: Reported increase in teachers' use of facilitative communication strategies. Data is presented as facilitative strategies teachers identified using more as measured 2-3-months post-intervention (n=37). Teachers had the option to select multiple strategies in response to question 18 in survey 3: '*Please identify if you have increased the use of any of the following strategies in your teaching practice/differentiation since attending the webinar'*. The most selected strategy by 76% (28/37) of the teachers was, 'slowing my rate of speech when giving instructions'.

No increase in referrals to SLT

The number of DEIS primary school referrals received to primary care SLT, County Galway were tracked for 3 months pre-intervention and 2-3 months post-intervention. There was no increase in referrals received from the pre-intervention period (20 children) to 2-3 months post-intervention period (17 children) on the Wilcoxon-Signed rank test (n=37, p=0.732). Additionally, teachers were asked to identify the number of referrals they made to primary care SLT in the last 3-months on all surveys. There was no significant increase in the reported number of referrals to primary care SLT from pre- to 2-3-months post-intervention based on the three months prior to and following the intervention on the Wilcoxon Signed rank test (n=37, p=0.851). Due to the Covid-19 global pandemic, primary schools in Ireland were only open for five of the possible fourteen weeks during

this timeframe. Schools closed from the end of December 2020 and did not fully re-open until mid-March 2021 which likely impacted negatively on the number of referrals made. Interestingly, there was a significant difference between the number of children identified by teachers as potentially having DLD (26) and the number of reported referrals made by teachers to primary care SLT (13) 2-3-months post-intervention ($n=37$, $p<0.001$). This revealed that teachers identified more children as having DLD than they referred to SLT 2-3-months post-intervention. As identification of DLD was not measured pre-intervention, it was not possible to analyze if this skill was significantly impacted by the intervention.

While there was no increase in referrals made to primary care SLT following the educational intervention, there was a significant difference in the number of children identified compared to those referred. This suggests that the intervention may have contributed to increased identification skills. Additionally, it generated the question 'why did the teachers not refer the children they identified to primary care SLT?'. Perhaps Covid-19 pandemic, subsequent school closures, and the short data gathering timeframe may have impacted on this result as data gathering ended two-weeks after schools re-opened in March 2021.

Influence of demographics most evident on awareness and confidence pre-intervention

The influence of demographic variables on levels of awareness, knowledge, and confidence were explored to account for the impact of factors other than the educational intervention on outcomes. All awareness and confidence questions, and the total knowledge scores pre-, post-, 2-3-months post-intervention, and the change scores between these were analysed (appendix 2, tables 15, 16 & 17).

Teachers with more years' teaching experience (21+ years), more years teaching in a DEIS school (21+ years), in the older age range (51+ years), and within specialist roles scored significantly higher on more questions within the awareness and confidence sections pre-intervention ($n=102$, $p\leq0.05$) and post-intervention ($n=78$, $p\leq0.05$) than other groups (appendix 2, table 15 & 16). The significantly higher score on awareness and confidence questions in these demographic groups was evident on fewer questions post-intervention suggesting that the intervention was successful in bridging the gaps in awareness and confidence between groups.

Teachers working in rural schools scored significantly higher on total knowledge than those in urban scores post-intervention ($n=78$, $p=0.044$) and in the change score ($n=71$, $p=0.031$) (appendix 2, table 17). However, there were fewer teachers in the rural group (23.5%) than urban group (76.5%) which may have skewed the mean used for comparison within school locations.

In summary, older, more experienced, and specialised teachers had greater awareness and confidence but not knowledge related to DLD pre-intervention. This suggests that experience and exposure play a role in awareness and confidence, but not in knowledge. Additionally, the educational intervention was effective in aligning teachers' awareness and confidence as differences seen within demographic groups pre-intervention were less evident post-intervention.

Discussion

To the authors knowledge, this study was the first of its' kind to demonstrate the effectiveness of a co-developed,[114,] evidenced-based,[115-117] online, synchronous,[100-102] educational intervention to increase teachers' awareness, knowledge, and actions (self-reported confidence and use of facilitative communication strategies) related to DLD. The insights gathered from the primary stakeholders, teachers,[28,61,63,66,104,118,119] and children[28,82,85,120,121] on DLD participation level 'red flags', and contextual facilitators and barriers to functioning and disability in school were in line with previous Irish and UK DLD/SLCN reports in the literature[105,118,119] strengthening existing findings. These findings shaped the successful educational intervention which was an efficient and effective tool in promoting DLD care in the school setting.

Promoting awareness of DLD

Awareness is the initial step to taking supportive action,[122] and lack of awareness of DLD leads to delayed access to services and poorer outcomes for the individual.[72] In Ireland, awareness, and identification of DLD is low as evidenced by the under-reported prevalence rate.[3] This is perhaps linked to a lack of specific training leaving teachers, particularly mainstream class teachers[57,62,63,65,66] uninformed about DLD. Lack of training and inconsistent use of terminology,[6] were identified as barriers to awareness of DLD among teachers, strengthening previous research findings.[14,52,115] Interestingly, the educational intervention was successful in aligning teacher's levels of awareness of DLD despite previous experience or role, extending learning on the implications of training and highlighting it as priority.

The importance of consistent terminology has been widely debated in the literature with consensus reached for one inclusive term, DLD.[2,3,6] Unsurprisingly, given the plethora of terminology for DLD and the mismatch between DES[125] and SLT[6] terminology in Ireland, teachers used a variety of labels and descriptions for DLD including the term itself. A significant finding of this study was the increased use of the correct term by teachers, which was maintained 2-3-months post-intervention. This is essential, as an increased awareness, a common understanding, and shared terminology among professionals and parents is crucial for DLD detection and collaborative working.[2,3,14,28] There is an

urgent need for the DES to use the more inclusive description of the disorder[3] to avoid confusion, so individuals with DLD may be identified more readily in schools.[3,13,28]

Conversely, and consistent with previous research the children showed awareness of their difficulties[85] but did not use any specific labels.[82] The lack of label use can be a conscious decision to reject any negative connotations associated with disability,[82] but it may also reflect a lack of awareness of the term, not having heard it used or applied to them. Research on assigning labels to children highlights the need to proceed cautiously.[82,85] However, a diagnosis of DLD can have positive implications for accessing services that enable individuals to achieve their potential.[2,3] A wider use, understanding, acceptance, and ownership of the term may serve the individual with DLD going forward.[2]

It is purported that awareness of DLD may be promoted in schools through the provision of teacher training such as the educational intervention at an undergraduate and CPD level,[3,14,73] the adoption of the clinical understanding of DLD by the DES, and consistent use of the term DLD among individuals, families, and professionals.

Promoting knowledge of DLD

Research on Autism indicates that increased knowledge of a disorder can lead to not only increased referrals,[72] but more informed teaching and positive attitudes towards inclusion.[115] In this study, knowledge of DLD was not influenced by experience or role, but predominantly by the educational intervention highlighting the importance of specific DLD training. Teachers identified the hidden nature of DLD, its underestimated prevalence, and ambiguity surrounding EAL and DLD, as barriers to promoting knowledge of DLD. DLD is harder to identify than more visible difficulties[2,47,49-52] which was notable in the findings where both children and teachers spoke more about the tangible, observable skills such as arts and mathematics than oral (receptive) language. Conceivably, this is influenced by the educational curriculum which until the introduction of the new primary language curriculum[117] in Ireland, emphasised, supported, and perhaps appreciated these skills more.

Consistent with previous research, children spoke more about what they could do than what they could not[82,119] while teachers focused more on the child's restrictions,[28] with one teacher identifying these as 'red flags' for DLD. These observations may stem from the education literature where participation is a desired outcome[109] and a lack of such is a problem and differ to those of many SLT interventions that focus on impairment.[28] This participation level conceptualization of DLD provides a pragmatic way of describing its' presentation within a classroom context and informs future SLT lead teacher training.

Both groups talked about the child with DLD's cognitive strengths, recognizing intelligence as a defining characteristic of the disorder. As in previous disability studies, teachers acknowledged that children with DLD can make progress with the right supports[25,63,65] and resilience.[85] There was uncertainty about cause and prevalence of DLD as there is in the literature,[3,121] highlighting the need to establish an accurate prevalence of DLD in Ireland to inform and guide health and education.[20] Most confusion was seen in relation to multilingualism and DLD. EAL and DLD can present similarly in learning specific aspects of language.[126] This accentuates the need for clarity on the topic to dispel ambiguity and facilitate earlier identification of DLD as previously identified by teachers in UK based research.[57] The educational intervention in this study was effective in doing this.

Therefore, it is hypothesized that alongside initiatives such as the new primary language curriculum,[127] and establishing an accurate prevalence,[2] training on DLD and EAL such as that in the educational intervention is warranted as it has proven effective in promoting knowledge of DLD in schools.

Promoting actions related to DLD

Increased teacher confidence is closely related to successful implementation of classroom strategies.[117] This study demonstrated that accessible teacher training can increase teacher self-efficacy linked to actions,[115-117] and use of facilitative communication strategies[74] in a school setting, substantiating existing research. As with awareness, the educational intervention was successful in aligning teacher's confidence related to DLD despite prior experience, age, or role, with a positive correlation between training and confidence in actions revealed. This finding adds to the literature and provides further rationale for the provision of DLD training such as the educational intervention, at an undergraduate and CPD level[52,57,115] to increase teacher's confidence in effective teaching practices,[74,117] and earlier identification[59] of children with DLD.

Previous research indicated that teacher training can increase onward referral of children to appropriate services.[59,72,73] Unfortunately, this was not the case for referrals to SLT following the educational intervention in this study. Referrals to SLT in Ireland are often recommended by teachers but require signed consent from parents/legal guardians. Interestingly, 2-3-months post-intervention, teachers reported identifying significantly more children with DLD than they reported referring to SLT, highlighting a hesitancy in suggesting SLT referral to parents. It is plausible that referral rates were impacted by Covid-19 school closures, and that teachers were waiting for schools to re-open in mid-March 2021 (end of the research period), to meet with the children before recommending a referral. It implies that teachers may lack confidence recommending a referral to parents, underlining

the need for increased parent awareness of DLD,[2,3,14] closer collaborative working between teachers and parents,[28] and a checklist or screening test suitable for the school setting to support recommending referrals to SLT.[17,128-130] In fact, a screening test for DLD was requested by teachers during the educational intervention, and while some screening tests exist, they incur cost and time. A new, fast screening is under development[127] and shows promise in identification of language disorders.[47,129,130] Preliminary research in conjunction with findings from this study, indicate that DLD screening assessments are warranted in a school setting to promote identification and onward referral to SLT.[17,129,130]

Other significant influencers on teacher actions (confidence, use of facilitative communication strategies, and referral to SLT) identified in addition training, parents, and Covid-19, were teacher supports and relationships, teacher workload and classroom environment. While the educational intervention was successful in promoting some actions in this study, research has indicated that teacher courses plus coaching/feedback are significantly more successful than a once-off course.[26] There was a clear picture of what teachers deemed as helpful supports and relationships and how this influenced teacher's confidence in actions. They outlined the need for regular, timely contact with professionals, collaborative working, optimally having the SLT working in the school, views that strengthen previous findings.[28,115,120] The employment of considerably more SLTs by the DES is a requirement to realise this, as staff shortages and long waiting lists for SLT were identified as frustrating barriers to accessing services and have been the subject of several media reports.[131-134] These findings pave the way for an in-school SLT model of service delivery in Ireland, as in other countries,[2,26] but needs to be one that will allow for holistic, (combined impairment, participation and environment focused) interventions including modelling of strategies, and inter-professional collaboration (IPC) [3,28] to support long-term benefits

Irelands' 'supersized' classrooms compared to other European countries,[135] and high teacher workload impedes a facilitating classroom,[63,117,118] described as one that is '*caring*', '*calm*', '*comfortable*' and '*quiet*'. This description matches previous DLD/SEN research findings that identified a sentient, inclusive and safe classroom,[28] that is small with less disruption,[121] with has adequate lighting and flexibility[133] as most desirable and conducive to learning. Additionally, the school was identified as a superior setting for SLT and learning than a primary care health centre. This highlights the need for a reduced teacher workload, in-class support in large, busy classrooms and/or reduced class sizes, and potentially for more DLD/SSLD classes, a setting that embodies the outlined desired classroom characteristics.[137]

This study and the literature in this space combined recommend that further actions related to DLD may be promoted through teacher training such as the educational intervention, the introduction of language screening as standard practice in schools,[17,128-130] an in-school SLT model of service delivery,[3] smaller, better supported mainstream classes,[63,117,118] and more DLD/SSLD classes.

Reviewing the awareness campaign

Previous public health awareness campaigns for communication disorders[59,73,74] and ASD[72,115,123] successfully used educational interventions to effect positive actions with early educators, teachers, parents, and communities. DLD is diagnosed during the primary school years,[3] and DEIS schools have a high intake of children from socially disadvantaged communities who are at greater risk of having DLD, providing an ideal setting for this campaign.[70,71] This study aligns with and strengthens the work of Johnson & Van Hecke (2015),[72] in that it employed a simple-once off, forty-five-minute intervention[72] rather than a complex multi-stepped, multi-method campaign that spanned over months.[59,74,123,124] This study adds to the literature as it demonstrated the success of providing the short intervention via a live, online, interactive webinar.[100-102] Results indicated that the online educational webinar was as effective as a face-to-face intervention in increasing awareness, knowledge, confidence, and strategies, but not in increasing referrals.[72]

Additionally, this study, unlike others[59,72] 'gives voice' [28] to the primary stakeholders, a step towards client lead care[114.] It was co-produced to promote success.[114,123] To date, there are no published, co-produced measures of teacher's awareness, knowledge, or actions related to DLD or means of increasing them. The novel surveys developed were successful in measuring these skills, and the educational intervention effective in augmenting them.

Limitations and future research

This study was limited by a myriad of factors, including the small sample size, researcher inexperience and potential bias, time constraints and the covid-19 pandemic. The qualitative findings were gathered from a small cohort, are exploratory in nature, and cannot be considered representative of all teachers and children experiences. Additionally, quantitative data was gathered on novel surveys from a small sample size, with an underrepresentation of teachers in rural schools which may have skewed some results. The research was completed across a short time frame during a global pandemic which influenced the method of data collection, level of participation, and possibly the number of referrals made to primary care SLT. While this study revealed that the educational intervention had an impact on the teachers differentiation/teaching practice, particularly an increased use of facilitative oral language strategies, it is difficult to measure the impact of this outcome for the

child without going into the classroom which was beyond the scope of this research particularly during the Covid-19 pandemic.

A similar piece of research across all primary level schools nationally, and over a longer timeframe to gather more referral data may yield more conclusive results on the impact of the educational intervention on referral to primary care SLT. Future research is warranted on DLD health promotion initiatives based in schools including the use of language assessments/screening for earlier identification.

Conclusion

This study is the first of its kind to develop and evaluate the effectiveness of co-produced instruments for measuring and promoting DLD awareness, knowledge, and actions among primary school teachers in Ireland that may be pertinent to other countries. It found that the simple, co-produced,[28,114,123] educational intervention proved suitable, and effective in promoting short-term changes in teachers' awareness, knowledge, and confidence related to DLD, and in their reported use of facilitative communication strategies. Positive changes to teacher' self-efficacy in identifying, working with, and referring onwards, may have long-term benefits to the functioning and well-being of the child with DLD within the school setting.[74-77] Further research is needed on promoting awareness, knowledge, and actions related to DLD in schools, but learnings suggest that this would be facilitated by improved undergraduate teacher training and CPD[57,62,63,65,66] for primary school teachers aided by in-school SLT supports.[3]

Acknowledgements

The author thanks Karen Coughlan, Padraig McGourty, Steven Griffin, Margaret McLoone, Emma Dunn, the children, teachers, SEN coordinators, principals, deputy principals, SLTs, SLT managers, and clerical officers for their time, input, and support. The author declares that there is no conflict of interest.

References

1. The association for child and adult mental health (ACMH) (2021) – Developmental language disorder. https://www.acamh.org/topic/developmental-language-disorder/ (accessed May 2021).
2. McGregor K (2020) How we fail children with developmental language disorder. *LSHSS*. 1-12.

3. Irish Association of Speech and Language Therapists (IASLT) (2017) Supporting Children with Developmental Language Disorder in Ireland: IASLT Position Paper and Guidance Document.
4. Snow P (2016) Elizabeth Usher Memorial Lecture: Language is literacy is language. Positioning Speech Language Pathology in education policy, practice, paradigms, and polemics. *Int J Speech-Lang Pa*. 18(3), 216-228.
5. Beard A (2017) Speech, language, and communication: a public health issue across the lifecourse. *Paed Child Healt-Can*. 126-131.
6. Bishop D, Snowling M, Greenhalagh T, *et al*. (2017) Phase II of CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *J Child Psychol. Psychiatry*. 58(10), 1068-1080.
7. Beitchman J, Wilson B, Johnson C, *et al.* (2001) Fourteen-year follow-up of speech/language-impaired and control children: Psychiatric outcome. *J. Am. Acad. Child Adolesc. Psychiatry.* 40(1), 75-82.
8. Schoon I, Parsons S, Rush R, *et al*. (2010) Children's language ability and psychosocial development: a 29-year follow-up study. *J. Peds*. 126(1), 73-80.
9. Eadie P, Conway L, Hallenstein B, *et al.* (2018) Quality of life in children with developmental language disorder. *Int J Lang Comm Dis*. 53(4), 700-810.
10. Adolf S & Hogan T (2019) If we don't look: we won't see: Measuring language development to inform literacy instruction. *JSLRF*. 6294), 896 -908.
11. Royal College of Speech and Language Therapists (RCSLT) (2018) Giving voice to people with developmental language disorder.
12. Locke A, Ginsborg J, Peers I (2002) Development and disadvantage: Implications for the early years and beyond. *Int J Lang Comm Dis*. 37(1), 3-15.
13. Gallagher A, Galvin R, Robinson K *et al*. (2020) The characteristics and self-concept of 13-year-olds with and without disabilities in Ireland: A secondary analysis of the Growing Up in Ireland (GUI) study. *PLoS ONE*. 15(3), 1-18.
14. Law J, Levickis P, McKean C, *et al.* (2017) Child Language in Public Health Context. Policy Brief Synthesising research evidence to inform policy. Melbourne: Murdoch Childrens Research Institute.
15. O' Hare A & Bremner L (2017) Management of developmental speech and language disorders: Part 1. *Arch Dis Child*. 101, 272-277.

16. Raouafi S, Achiche S, Raison M (2018) Socioeconomic disparities and difficulties to access to healthcare services among Canadian children with neurodevelopmental disorders and disabilities. *J Epidemiol Commun H.* 40,1-10.
17. Dockrell J & Hurry J (2018) The identification of speech and language problems in elementary school: Diagnosis and co-occurring needs. *Dev. Disabil. Res. Rev.* 81, 52-64.
18. Roy P, Chiat S, Dodd B (2014) Language and Socioeconomic Disadvantage. *From Research to Practice. London*. UK: City University London.
19. Spencer N, Thanh TM, Louise S (2013) Low income/socio-economic Status in Early Childhood and Physical Health in Later childhood/adolescence: A Systematic Review. *Matern Child Health J.* 3, 424-31.
20. Raghavan R, Camarata S, White K, *et al.* (2018) Population health in pediatric speech and language disorders: available data sources and a research agenda for the field. *JSLHR*. 61, 1279-1291.
21. Bishop D (2010) Which neurodevelopmental disorders get researched and why? *PLOS One.* 5(11), 15112.
22. Norbury C, Gooch D, Wray C, *et al*. (2016) The impact of nonverbal ability on prevalence and clinical presentation on language disorder: Evidence from a population study. *J Child Psychol Psychiatry*. 57, 1247-1257.
23. National Council for Special Education (NCSE) (2018) Educational Experiences and Outcomes of children with Special Educational Needs: Phase II -from 9 to 13, Research Report no. 25.
24. Meschi V, Vignoles A, Lindsay G (2010) An investigation of pupils with Speech, Language and Communication Needs (SLCN). Institute of Education, University of London, CEDAR, University of Warwick.
25. National Council for Special Education (NCSE) (2014). Supporting Students with Special Educational Needs in Schools: NCSE POLICY ADVICE PAPER NO. 4. Co. Meath, Ireland.
26. Ebbels S, McCartney E, Slonmins V, *et al.* (2019) Evidence-based pathways to intervention for children with language disorders. *Int J Lang Disord.* 54(1), 3-19.
27. Royal College of Speech and Language Therapists (RCSLT) (2010) An economic evaluation of speech and language therapy; factsheet.
28. Gallagher A, Murphy CA, Conway P, *et al*. (2019) Engaging multiple stakeholders to improve speech and language therapy services in schools: an appreciative inquiry-based study. *BMC Health Serv. Res*. 19(226), 1 -17.

29. RCSLT (2017) *RCSLT briefing paper on Language Disorder with a specific focus on Developmental Language Disorder*.
30. Government of Ireland, Department of Health (2017) *Slaintecare Implementation Strategy.* https://assets.gov.ie/22607/31c6f981a4b847219d3d6615fc3e4163.pdf (accessed 12 Jul 2020).
31. Government of Ireland, Department of Health (2013) *Healthy Ireland - A framework for Improved Health and Wellbeing 2013 – 2025.* Dublin; DOH. https://www.hse.ie/eng/about/who/healthwellbeing/healthy-ireland/publications/hi-framework.jpg (accessed 12 Jul 2020).
32. Government of Ireland, Department of Health (DOH) (2018) *Healthy Ireland Outcomes Framework.* Dublin; DOH. https://www.hse.ie/eng/about/who/healthwellbeing/healthyireland/publicationshealthy-ireland-outcomes-framework-2018.pdf (accessed 12 Jul 2020).
33. Government of Ireland, Department of Children and Youth Affairs (2014*) Better Outcomes, Brighter Futures: The national policy framework for children and young people 2014 – 2020*. Dublin. https://assets.gov.ie/23796/961bbf5d975f4c88adc01a6fc5b4a7c4.pdf (accessed 21 Dec 2019).
34. Government of Ireland. *Disability Act 2005, No. 14 of 2005*. Dublin. https://www.oireachtas.ie/en/bills/bill/2004/39/ (accessed: 21 Dec 2019).
35. Government of Ireland, Department of Education and Skills (2017) *DEIS Plan 2017: Delivering Equality of Opportunity in Schools.* https://www.education.ie/en/Publications/Policy-Reports/DEIS-Plan-2017.pdf (accessed 21 Feb 2020).
36. Government of Ireland (2004) E*ducation for Persons with Special Needs (EPSEN) Act 2004, No. 30 of 2004*, Dublin. https://www.oireachtas.ie/en/bills/bill/2003/34/ (accessed 21 Dec 2019).
37. Government of Ireland (1998) *Education Act.* Dublin. http://www.irishstatutebook.ie/eli/1998/act/51/enacted/en/html (accessed 12 Jul 2020).
38. Health Service Executive (HSE) (2013) *Schools for Health in Ireland: Co-ordinator Handbook for Developing a Health Promoting School*. Dublin. https://www.healthpromotion.ie/hpO files/docs/HPM00840.pdf (accessed: 6 Jan 2020).
39. Mostafa E & Ahmed M (2018) Public awareness of delayed language development in Upper Egypt. *EJO*. 34, 94-102.

40. Cronin P (2017) The economic impact of childhood developmental language disorder. *Open publications of UTS Scholars*.
41. Kamhi AG (2004) A meme's eye view of speech-language pathology. *Lang Speech Hear Ser.* 35, 105-111.
42. Sudharshan Reddy M (2019) A preliminary report on awareness of communication disorders among nursing trainees and primary school teachers. *Indian J Pediatr*. 19, 500-508.
43. Cohen MJ, Menna R, Vallance DD *et al*. (1998) Language, Social Cognitive Processing, and Behavioral Characteristics of Psychiatrically Disturbed Children With Previously Identified and Unsuspected Language Impairments. *J Child Psychol Psychiatry*. 39(6), 853-64.
44. Mroz M (2006) Teaching in the foundation stage-how current systems support teachers' knowledge and understanding of children's speech and language. *Int. J. Early Years Educ.*14(1), 45-61.
45. Sudharshan Reddy M, Shanbal JC, Arunraj K (2016) Awareness of communication disorders in Hospet Taluk of Karnataka: A preliminary survey report. *Indian J Pediatr*. 16, 132-144.
46. Hendricks A, Adlof A, Fox A, *et al.* (2019) Identifying children at risk for developmental language disorder using a brief whole-classroom screen. *J. Speech Lang. Hear. Re*. 62, 896-908.
47. Adlof SM, Scoggins J, Brazendale A, *et al*. (2017) Identifying children at risk for language impairment or dyslexia with group administered measures. *J. Speech Lang. Hear. Res.* 60, 3507-3522.
48. Bandurra A (1977) Social Learning Theory. Englewood Cliffs, NJ.: Prentice Hall.
49. American Speech-Language Hearing Association (ASHA) (2019) *ASHA Parent Survey Spring 2019 Report*.
50. Silliman ER & Bremner VP (2011) Cross-disciplinary dialogue about the nature of oral and written language problems in the context of developmental, academic, and phenotypic profiles. *Top Lang Disord*. 31(1), 6-23.
51. Catts H, Fey M, Zhang X, *et al.* (2001) Estimating the risk of future reading difficulties in kindergarten children: A research-based model and its clinical implementation. *Lang Speech Hear Ser*. 32, 38–50.
52. Adlof SM, Hogan, TP (2019) If we don't look, we won't see: measuring language development to inform literacy instruction. *Policy Insights Behav Brain Sci.* 6(2), 210-217.
53. Dockrell J, Lindsay G, Letchford B (2006) Educational provision for children with specific speech and language difficulties: perspectives of speech and language therapy managers. *Int J Lang Comm Dis*. 41, 423-440.

54. Van Borsal J, Moeyaert J. Mostaert C, *et al*. (2006) Prevalence of stuttering in regular and special school populations in Belgium based on teacher perceptions. *Folia Phoniatr Logo.* 58(4), 289-302.
55. Al-Sharbati MM, Al-Farsi YM, Ouhtit A, *et al*. (2015) Awareness about autism among schoolteachers in Oman: A Cross-sectional study. *Autism.*19(1), 6-13.
56. Lu M, Zou Y, Chen X, *et al*. (2020) Knowledge, attitude, and professional self-efficacy of Chinese mainstream primary school teachers regarding children with autism spectrum disorder. *Res. Autism Spectr. Disord.* 72,1-12.
57. The Communication Trust (2017) Professional development in speech, language, and communication: Findings from a national survey, United Kingdom.
58. Ebert KA & Prelock PA (1994) Teachers' perceptions of their students with communication disorder. *Lang Speech Hear Ser.* 25, 211-214.
59. McLeod S, McKinnon DH (2001) Prevalence of communication disorders compared with other learning needs in primary and secondary school students. *Int J Lang Comm Dis*. 42, 37-59.
60. Antoniazzi D, Snow P, Dickinson-Swift V (2010) Teacher identification of children at risk for language impairment in the first year of school. *Int J Speech-Lang Pa.*12, 244-252.
61. Department for Education (2017) *SEN support: a survey of schools and colleges, Research Report.* United Kingdom.
62. Government of Ireland, House of the Oireachtais, Joint Committee on Education and Skills (2017) *Report on Training and Supports for Providers of Special Needs Education and Education in DEIS schools*.
63. NASUWT The Teachers Union (2018) *Special Educational Needs (SEN), Additional Learning Needs (ALN) and Additional Support Needs (ASN), Survey Report.*
64. National Council for Special Education (NCSE) (2010) *National survey of Parental attitudes to and experiences of local and national special education services, Research Report No: 6*.
65. NASUWT The Teachers Union (2019) *The Big Question 2019, An opinion survey of teachers and headteachers.*
66. National Council for Special Education (NCSE) (2015) *Project IRIS-Inclusive Research in Irish Schools, Research Report No: 20.*
67. Chen H-J, Hsin-Ju Ko M, Li S-T, *et al*. (2020) Prevalence of preschool children's developmental disabilities in Northeastern Taiwan – screening with Taipei city developmental screening checklist for pre-schooler, 2nd version. *J Formos Med Assoc.* 119(7),1174-1179.

68. Fricke S, Bowyer-Crane C, Harley AJ, *et al.* (2013) Efficacy of language intervention in the early years. *J Child Psychol Psychiatry*. 54(3), 280-290.
69. Bower- Crane C, Snowling M, Duff F, *et al*. (2008) Improving early language and literacy skills: Differential effects of an oral language versus a phonology with reading intervention. *J Child Psychol Psychiatry*. 49(4), 422-432.
70. Bloch P, Toft U, Reinbach HC, *et al.* (2018) Revitalizing the setting approach - Supersettings for sustainable impact in community health promotion. *Int J Behav Nutr Phy*. 11, 118.
71. Government of Ireland. Department of Education and skills (DES), Health Service Executive (HSE), Department of Health (DOH) (2015) *Schools for Health in Ireland: FRAMEWORK for Developing a Health Promoting School-Primary.*
72. Johnson N & Van Hecke A (2015) Increasing awareness in inner-city churches:a brief report. *Pediatr. Nurs.* 30, 63-69.
73. Weiner L (1994) Increasing frequency and appropriateness of high school teachers' referrals for speech language support services by implementing a public relations campaign. Practicum report, PhD Thesis. Nova Southeastern University.
74. O'Toole C & Kirkpatrick V (2007) Building collaboration between professionals in health and education through interdisciplinary training. *Child Lang Teach Ther.* 23, 325-352.
75. Clarke A, Sixsmith J, Barry M (2010) Evaluating the implementation of an emotional wellbeing programme for primary school children using participatory approaches. *Health Educ. J.* 74(5), 578–593.
76. Payton J, Weissberg R, Dulark J (2008) The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews. Chicago, IL: *Collaborative for Academic, Social, and Emotional Learning.*
77. World Health Organisation (WHO) (2012) Health Behaviour in School-Aged Children (HBSC) Fact Sheet. Copenhagen.
78. World Health Organisation (WHO) (2018) Chronic diseases and health promotion. http://www.who.int/chp/chronic_disease_report/part1/en/index11.html. (accessed 2/6/2021).
79. Driessnack M, Souska VD, Costa Mendes I (2007) An overview of research designs relevant to nursing: part 3: mixed and multiple methods. Rev Latino-am Enfermagem. 15(5), 1046-1049.
80. Rolfe D, Ramsden V, Banner D *et al.* (2018) Using qualitative Health Research methods to improve patient and public involvement and engagement in research. *RIE.* 4 (49), 1-8.
81. Creswell JW (2007) *Qualitative Inquiry and Research Design: Choosing Among Five Approaches,* 2nd ed. London: Sage.

82. Lyons R, Roulstone S (2017) Labels, identity, and narratives in children with primary speech and language impairment. *Int. J. Speech-Lang. Pathol.* 19(5), 503-518.
83. Government of Ireland (2021) https://www.gov.ie/en/publication/c97fbd-teacher-statistics/#breakdown-of-career-break-by-year-sector-and-gender. (accessed July 2021).
84. Tong A, Sainsbury P, Craig J, (2007) Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int. J Qual Health Care*. 19(6), 349 –357.
85. Lyons R, Roulstone S (2018) Listening to the voice of children with developmental speech and language disorders using narrative inquiry: Methodological considerations. *Int J Lang Comm Dis*. 72, 16-25.
86. Clandinin J, Connelly FM (1994) Personal experience methods in N. Denzin & Y. Lincoln (Eds), *Handbook of Qualitative Research*, Thousand Oaks, CA: Sage.
87. Adler K, Salantera S, Zumstein-Shaha Z (2019) Focus Group Interviews in Child, Youth, and Parent Research: An Integrative Literature Review. *Int. J. Qual Methods*. 18, 1-15.
88. Wilson AD, Onwuegbuzie AJ, Manning LP (2016) Using paired depth interviews to collect qualitative data. TQR. 21(9), 1549-1573.
89. Hill V, Croydon A, Greathead S *et al.* (2016) Research methods for children with multiple needs: Developing techniques to facilitate all children and young people to have 'a voice'. *Educ. Child Psychol.* 33(3), 26-43.
90. Einarsdottir J, Dockett S, Perry B (2009) Making meaning: children's perspectives expressed through drawings. *Early Child Dev Care.* 179(2), 217-232.
91. McLeod S, McKinnon DH (2007) Prevalence of communication disorders compared with other learning needs in 500 primary and secondary school students. *IJLCD*. 42, 37 - 59.
92. Boateng GO, Neilands TB, Frongillo EA *et al.* (2018) Best practices for Developing and validating scales for health, social and behavioural research: a primer. *Public Health Front*. 6 (149), 1-18.
93. Rickards G, Magee C, Artino ARJ (2012) You Can't Fix by Analysis What You've Spoiled by Design: Developing Survey Instruments and Collecting Validity Evidence. *J Grad Med Educ.* 4(4), 407-410.
94. Hinkin TR (2005) A review of scale development practices in the study of organizations. *J. Manag. Stud.* 21, 967-988.
95. Haynes SR, Richard DCS, Kubany ES (1995) Content validity in psychological assessment: a functional approach to concepts and methods. *Psychol. Assess.* 7, 309-319.

96. Raykov T, & Marcoulides GA (2011) *Introduction to Psychometric Theory*. New York, Routledge, Taylor & Francis Group.
97. Frost MH, Reeve BB, Liepa AM, *et al*. (2007) What is sufficient evidence for the reliability and validity of patient-reported outcome measures? *Value Health.* 10(2), 95-105.
98. Rothman M, Burke L, Erickson P, *et al*. (2009) Use of existing patient reported outcome (PRO) instruments and their modification: The ISPOR good research practice for evaluating and documenting content validity for the use of existing instruments and their modification -PRO task Force report. *Value Health*. 12(8), 1075-1083.
99. Watson R (2013) Issues and debates in validity and reliability in Curtis, E & Drennan, J. *Quantitative Health Research: Issues And Methods*, McGraw-Hill Education, Maidenhead, England.
100. Ebner C, Gegenfurtner A (2019) Learning and satisfaction in webinar, online, and face-to-face instruction: a meta-analysis. *Front. Educ*. 4(92), 1-11.
101. Gegenfurtner A, Ebner C (2019) Webinars in higher education and professional training: a meta-analysis and systematic review of randomised controlled trials. *Educ. Res. Rev*. 28, 2-19.
102. Yates J (2014) Synchronous online CPD: empirical support for the value of webinars in career settings. *Br J Guid Counsell*. 42(3) 245-260.
103. Ritchie J, Spencer L, O' Connor W (2006) Carrying out qualitative analysis, In J. Ritchie & J. Lewis (Eds), *Qualitative Research practice Guide: A Guide for Social Science Students and Researchers*. 219-261.
104. Ritchie J, Lewis J (2003) *Qualitative research practice: a guide for social science students and researchers.* London: Sage; 2003
105. Gale N, Heath G, Cameron E *et al.* (2013) Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Method*. 12(117), 2-8.
106. World Health Organisation (WHO) (2001) International Classification of Functioning, Disability, and Health (ICF). http://www.who.int/classifications/icf/en/ (accessed March 2020).
107. Gallagher AL, Murphy CA, Conway PF, *et al*. (2019) Consequential differences in perspective and practices concerning children with developmental language disorders: an integrative review. *Int J Lang Comm Dis*. 54(4), 529-552.
108. Braun V, Clarke V (2006) Using thematic analysis I psychology. *Qual Res Psychol*. 3(2), 77-101.

109. Huebner M, Vach W, le Cessie,S, *et al*. (2020) Initial Data Analysis of the STRATOS Initiative (STRengthening Analytical Thinking for Observational Studies, http://www.stratos-initiative.org) Hidden analyses: a review of reporting practice and recommendations for more transparent reporting of initial data analyses. *BMC Med. Res. Methodol. 20(61) 1-10.*

110. Ponterantseva V, Ilichevc O (2011) *Clinical Data Collection, Cleaning and Verification in Anticipation of Database Lock: Practices and Recommendations. J. Pharm. Med. 25(4), 223-233.*

111. IBM SPSS (2019) Statistics for Windows, version. *IBM Corp*., Armonk, N.Y., USA.

112. Roberts P, Priest H (eds) (2010) *Healthcare research: A textbook for students and practitioners*. Chichester: Wiley-Blackwell.

113. Minichiello V, Sullivan G, Greenwood K *et al.* (eds) (1999) *Handbook of research methods for nursing and health sciences.* French Forest, Australia: Pearson Education Australia.

114. HSE (2018) *People's Needs Defining Change - Health Services Change Guide*. Co. Meath: Human Resources Division, HSE. http://www.hse.ie/eng/staff/resources/changeguide/resources/change-guide.pdf (accessed: 21 Dec 2019).

115. Crispel O, Kasperki R (2019) The impact of teacher training in special education on the implementation of inclusion in mainstream classrooms. *Int. J. Incl. Educ.* Ahead-of-print, 1-7. http://doi.org/10.1080/13603116.2019.1600590. (accessed 3 June 2021).

116. Sokal L, Sharma U (2017) Do I really need a course to learn how to teach students with disabilities? I've been doing it for years. *Can. J. High. Educ*. 40(4), 739-760.

117. Sharma U, George S (2016) Understanding teacher self-efficacy to teach inclusive classrooms. *In Asia-Pacific Perspectives on Teacher Self-Efficacy*. Rotterdam: Sense.

118. Glover A, McCormack J, Smith-Tamaray M (2015) Collaboration between teachers and speech and language therapists: services for primary school children with speech, language, and communication needs. *Child. Lang. Teach. Ther.* 31(3), 363-382.

119. McKean C, Reilly S, Bavin EL et al. (2017) Language outcomes at 7 years: early predictors and co-occuring difficulties. *Pediatrics.* 139(3).

120. National Council for Special Education (NCSE) (2016) *A Study of the Experiences of Post Primary Students with Special Educational Needs. Research Report No. 23*. https://ncse.ie/wp-content/uploads/2016/07/NCSE-A-Study-of-the-Experiences-of-Post-Primary-Students-with-Special-Ed-Needs.pdf. (accessed 6 July 2020).

121. Owen R, Hayett L, Roulstone S (2004) Children's views of speech and language therapy in school: consulting children with communication difficulties. *Child. Lang. Teach. Ther*. 20(1),55-73.

122. Bandurra A. (1977) *Social Learning Theory.* Englewood Cliffs, NJ.: Prentice Hall.

123. Ring E, O'Sullivan L, O'Keefe, *et al*. (2019) Transforming the lives of early childhood teachers, autistic children and their families: findings and recommendations from an evaluation of a programme of continuing professional development. *The Irish Journal of Adult and Community Education*. 118-147.

124. Frizelle P, Mullane E, O'Shea A, *et al*. (2021) Happy Talk: a pilot effectiveness study of a target-selective speech-language and communication intervention for children from areas of social disadvantage. *Int J Lang Commun Disorder*. 1-21.

125. Government of Ireland. Department of Education and Science. (2005) *Special education circular 02/05*. https://www.sess.ie/sites/default/files/Documents_Publications/Circular_SP_02_05.pdf. (accessed 7 Jul 2020).

126. Garraffa M, Vendor M, Sorace A *et al*. (2019) Is it possible to differentiate multilingual children and children with developmental language disorder? *MEITS.* https://www.researchgate.net/publication/331984956. (accessed 4 June 2021).

127. Government of Ireland, Department of Education and Skills (2019) Primary language Curriculum. Dublin. https://www.curriculumonline.ie/getmedia/2a6e5f79-6f29-4d68-b850-379510805656/PLC-Document_English.pdf. (accessed 07 Jan 2020).

128. Zhang X, Qin F, Chen Z et al. (2020) Fast screening for children's developmental language disorders via comprehensive speech ability evaluation-using a novel deep learning framework. *Ann Transl Med*. 8(11), 1-14.

129. Hogan T (2021) *A call for school-based language screenings.* https://dldandme.org/school-language-screening/ (accessed 4 June 2021).

130. Ebert K, Ochoa-Lubinofff C, Holmes MP (2019) Screening school-age children for developmental language disorder in primary care. *Int J Speech-Lang Pa.* 1-11.

131. Duncan P (2014) *More than 32,000 children await speech services.* Irish Times. 31st March 2014. https://www.irishtimes.com/news/health/more-than-32-000-children-await-speech-services-1.1743869. (accessed 7 Jul 2020).

132. O' Brien C (2014) *Thousands of children with disabilities waiting years for supports.* Irish Times. February 7th, 2014. https://www.irishtimes.com/news/health/thousands-of-children-with-disabilities-waiting-years-for-supports-1.1682796. (accessed 7 Jul 2020).

133. Bermingham D (2020) *We can't allow Covid to disadvantage children: warning on growing waiting lists*. Echolive. 2 Nov 2020. https://echolive.ie/corknews/arid-40095461.html. (accessed 4/5/2021).

134. McDonagh M, Cullen P (2020) *Concerns grow as HSE therapists redeployed as Covid-19 testers. Irish Times.* 3 September 2020. https://irishtimescom/news/health/concers-grow-as-HSE-therapists-redeployed-as-Covid-19-testers-1.4345947. (accessed 4/5/2021).

135. Irish National Teachers Organisation (INTO) (2021) INTO demands Ireland comes into line by reducing class size- OECD report. https://www.into.ie/2020/09/08/into-demands-ireland-comes-into-line-by-reducing-class-size-oecd-report/ (accessed September 2021).

136. Barrett D, Davie F, Zhang Y *et al*. (2017) The holistic impact of classroom spaces on learning specific subjects. *Environ Behav.* 49(4), 425-451.

137. Gibbons M, Corry T, Finnerty N *et al*. (2016) Investigating Outcomes of Two Models of Service Delivery for 8 - 13-Year-Old Children with Specific Language Disorders. *Creating the Future Now, 30th World Congress of the IALP,* Dublin.

Supplementary material

Appendix 1

Saolta
Grúpa Ollscoile Cúram Sláinte
University Health Care Group

Ospidéal na h-Ollscoile, Páirc Mheirlinne
Merlin Park University Hospital
GALWAY UNIVERSITY HOSPITALS

Clinical Research Ethics Committee
Room 59
First Floor
HR Building
Merlin Park Hospital
Galway.

20th May, 2020.

Ms. Maria Gibbons
Clinical Specialist SLT
HSE-West
Mincloon
Rahoon
Galway.

Ref: C.A. 2379 ***Aware, Acknowledge, Act: Raising primary level schools' teacher's awareness, knowledge and actions surrounding Development Language Disorder (DLD) in Delivering Equality of Opportunities in Schools (DEIS) in the West of Ireland***

Dear Ms. Gibbons,

I have considered and reviewed the above submission, and I wish to confirm that I am happy to grant Chairman's approval to proceed.

'This submission has been reviewed from an ethical perspective only. It is the responsibility of the PI/sponsor/data controller and relevant Data Protection Officer to ensure and monitor compliance with any relevant legislation in the country where the study is due to take place or any local policy in the site where the study is due to take place.'

"Chairman's approval is normally ratified at the next Clinical Research Ethics Committee meeting. If any issues with your application are identified at the meeting we will contact you again"

Yours sincerely,

B. Gerard Loftus FRCPI,MD
Emeritus Professor of Paediatrics, NUI,Galway
Adjunct Professor of Paediatrics, IMU, Kuala Lumpur
Chair, Galway Clinical Research Ethics Committee.

Ospidéal na h-Ollscoile, Páirc Mheirlinne, Merlin Park University Hospital,
Galway, Ireland. Tel: 00 353 (0)91 757631

Sample of informed consent forms: Phase I (parents & children) & phase II (teachers)

Informed Consent Sheet for Parents: Phase one

A study on primary level schools' teacher's awareness, knowledge and actions surrounding Developmental Language Disorder (DLD) in Delivering Equality of Opportunities in Schools (DEIS) in the West of Ireland.

PARTICIPANT INFORMATION SHEET

You child is invited to take part in wave one of a two-part research study. It is important for you to understand *why* this research is being carried out and *what it will involve* before you decide whether you would like your *child to take part*. This Information Sheet has been written for you. It is important that you read it and discuss it with one of the researchers or anybody you wish. Please ask whatever questions you have. Further information about the study can be provided. Take time to decide if you wish to take part.

WHAT IS THIS STUDY ABOUT?

The aim of this wave of the study is to explore children aged between 9 -12 years with a diagnosis of Developmental Language Disorder (DLD) attending a DEIS primary school experiences of having DLD in a school setting.

WHAT WILL I HAVE TO DO?

If you agree for your child to participate in this study, I will first ask you if your child is currently attending a DEIS primary level school. Your child will be invited to take part in a thirty-minute face-to-face focus group with other children with DLD or a 15-minute online semi-structured interview. The principal researcher will facilitate the group by make introductions and gently guiding the discussion with questions/scenarios. The discussion will take place either in your child's school or online via a virtual platform (e.g., Zoom) depending on Covid -19 guidelines at the time of the study. Approximately 2-3 children will be in the face-to-face focus group or just your child in the online interview. No one else but the people who take part in the discussion and the me will be present

during this discussion. The entire discussion will be tape/video recorded. The recording will be kept safe in accordance with the Data Protection Act (2018) and in line with HSE data protection policy (2019). The recordings will be destroyed 12 months after the study.

WHAT ARE THE POSSIBLE BENEFITS OF TAKING PART?

Currently, DLD is a low recognition, high cost public health issue in Ireland. There is a need to highlight it as a priority within the health and education sector. This research aims to explore experiences of children with DLD in DEIS primary schools to gain insights and inform service development and health promotion. Increased awareness, knowledge and actions will hopefully bring about greater outcomes for individuals with DLD, their families and society.

WHAT ARE THE POSSIBLE DISAVANTAGES OF TAKING PART?

A possible disadvantage to you and your child is the time it takes to be involved in the focus group/interview. An effort will be made to hold the focus group/interview at a time and venue that suits majority of the participants. Your child is also free not to answer any question you may feel uncomfortable with.

DOES MY CHILD HAVE TO TAKE PART?

No. If you do decide to let your child take part, you will be given this Information Sheet to keep and asked to sign a Consent Form.

WILL MY TAKING PART BE CONFIDENTIAL?

Yes. All information collected about your child during the research will be kept confidential. Your child will be assigned a participant number and it will not be possible for your child to be identified in any published reporting of the data. All data will be kept on the principal researcher's computer that is password protected. All anonymized data will be kept on the principal researcher's computer that is password-protected until end of September 2022.

WHO ELSE IS TAKING PART?

Other primary level children with a diagnosis of DLD currently attending a DEIS school in the West of Ireland.

WHAT IF SOMETHING GOES WRONG?

In the unlikely event that something goes wrong during the focus group/interview, the session will be stopped by the researcher the matter is resolved and your child feels comfortable to resume the session. Should technical issues arise, the researcher may try to reschedule the remainder of the focus group/interview with agreeing participants.

WHAT WILL HAPPEN AT THE END OF THE STUDY?

Learning from this wave will guide the development of a questionnaire and information workshop (webinar) for teachers on DLD. This will allow a potential method of increasing awareness, knowledge and actions surrounding DLD in DEIS schools in Ireland to be investigated. Results will be summarized in a report at the end of the study and may be published in scientific journals and presented at conferences, again without any breach of confidentiality. All anonymized data gathered from the research will be password-protected and stored securely and safely in the principal researcher's office for up to 10 years.

WHAT IF I HAVE QUESTIONS OR DO NOT UNDERSTAND SOMETHING?

If you do not understand any part of the research, please contact a member of the research team. It is our priority that you and your child feel completely comfortable during the research.

WHAT IF I CHANGE MY MIND DURING THE STUDY?

Your child can withdraw from the study at any time without giving a reason. Such instances will be dealt with in a sensitive and confidential manner.

ETHICS PERMISSION

This study has been approved by the Ethics Research Committee Board, Merlin Park Hospital, Galway (Ref number: C.A. 2379).

If you have any concerns about the study and wish to contact someone independent, you may contact:

Administrator
Clinical Research Ethics Committee
Main Administration Building
Merlin Park University Hospital, Galway **Tel:** 091 – 775022
Email: colette.collins@hse.ie

FURTHER INFORMATION

If you would like to obtain further information about the nature of the study, you can do so by contacting:

- Principal researcher: MSC Researcher: Maria Gibbons, Clinical Specialist Speech & Language Therapist, HSE-West. Email: maria.gibbons@mail.itsligo.ie
- Research supervisor: Karen Coughlan PhD, Assistant Lecturer Health and Exercise Science, School of Science, IT Sligo, Ash Lane, Sligo. Email: coughlan.karen@itsligo.ie

INFORMED CONSENT

My child has been invited to participate in research his/her experiences with DLD in the school setting**. I have been asked to give consent for my daughter/son to participate in this research study which will involve him/her participating in a focus group or interview. I have read the participant information sheet. I have had the opportunity to ask questions about it and any questions I asked have been answered to my satisfaction. I consent voluntarily for my child to be a participant in this study.**

Print Name of Parent or Guardian_____

Signature of Parent or Guardian _____

School name _____-

Date _____

A copy of this Informed Consent Form has been provided to the participant.

Print Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

PLEASE INDICATE YOUR INTEREST TO PARTICIPATE BY RETURNING SIGNED CONSENT FORM TO: maria.gibbons@mail.itsligo.ie OR Maria Gibbons, CSSLT, Shantalla Health Centre, 25 Newcastle Rd., Galway.

Informed Consent Sheet for children: Phase one

A study on primary level schools' teacher's awareness, knowledge and actions surrounding Developmental Language Disorder (DLD) in Delivering Equality of Opportunities in Schools (DEIS) in the West of Ireland.

PARTICIPANT INFORMATION SHEET

You are invited to take part in a research study. It is important for you to understand *why* this research is being carried out and *what it will involve* before you decide whether you would like you *to take part*. This Information Sheet has been written for you. It is important that you read it and discuss it with anybody you wish. Please ask whatever questions you have. Take time to decide if you wish to take part.

WHAT IS THIS STUDY ABOUT?

The aim of the study is to explore children aged between 9 -12 years with a diagnosis of Developmental Language Disorder (DLD) attending a DEIS primary school experiences of having DLD in a school setting.

WHAT WILL I HAVE TO DO?

If you agree to involved in this study, you will be invited to take part in a thirty-minute face-to-face focus group with other children with DLD or a 15-minute online interview.

I will introduce everybody and ask some questions. The session will take place either in your school or online via a virtual platform (e.g., Zoom) depending on Covid -19 guidelines at the time of the study.

About 2-3 children will be in the face-to-face focus group or just one child in the online interview. No one else but the people who take part in the discussion and the me will be present during this discussion. The entire discussion will be tape/video recorded. The recording will be kept safe in accordance with the Data Protection Act (2018) and in line with HSE data protection policy (2019). The recordings will be destroyed 12 months after the study.

WHAT ARE THE POSSIBLE BENEFITS OF TAKING PART?

Little is known about children with DLD's experience in DEIS primary schools in Ireland. Hearing your thoughts and experiences can help adults understand what works well for you in school and what does not. This will help people learn more about DLD.

WHAT ARE THE POSSIBLE DISAVANTAGES OF TAKING PART?

A possible disadvantage to you is the time it takes to be involved in the focus group/interview. The group/interview will be held during school time. You do not have to answer all the questions if you do not want to.

DO I HAVE TO TAKE PART?

No.

WILL MY TAKING PART BE CONFIDENTIAL?

Yes. All information collected will be kept confidential and secure. Your name will not be used in the study.

WHO ELSE IS TAKING PART?

Other primary level children with a diagnosis of DLD currently attending a DEIS school in the West of Ireland.

WHAT IF SOMETHING GOES WRONG?

If something goes wrong, the session will be stopped until you are ready to start again.

WHAT WILL HAPPEN AT THE END OF THE STUDY?

Information you give will make up part of a report/article which may be published in a scientific journal article. Your name will not be on any documents and what you say will be stored securely.

WHAT IF I HAVE QUESTIONS OR DO NOT UNDERSTAND SOMETHING?

If you do not understand any part of the research, please contact a member of the research team.

WHAT IF I CHANGE MY MIND DURING THE STUDY?

Your child can pull out from the study at any time without giving a reason.

ETHICS PERMISSION

This study has been approved by the Ethics Research Committee Board, Merlin Park Hospital, Galway (Ref number: C.A. 2379).

If you have any concerns about the study and wish to contact someone independent, you may contact:

Administrator
Clinical Research Ethics Committee
Main Administration Building
Merlin Park University Hospital, Galway **Tel:** 091 – 775022
Email: colette.collins@hse.ie

FURTHER INFORMATION

If you would like to obtain further information about the nature of the study, you can do so by contacting:

- Principal researcher: MSC Researcher: Maria Gibbons, Clinical Specialist Speech & Language Therapist, HSE-West. Email: maria.gibbons@mail.itsligo.ie
- Research supervisor: Karen Coughlan PhD, Assistant Lecturer Health and Exercise Science, School of Science, IT Sligo, Ash Lane, Sligo. Email: coughlan.karen@itsligo.ie

INFORMED CONSENT

I have been invited to participate in research on my experiences of DLD in the school setting**. I have been asked to give consent to participate in this research study which will involve participating in one focus group or interview. I have read the participant information sheet. I have had the opportunity to ask questions about it and any questions I asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.**

Print Name of student_____

Signature of student _____

School name: _____

Date _____

A copy of this Informed Consent Form has been provided to the participant.

Print Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

PLEASE INDICATE YOUR INTEREST TO PARTICIPATE BY RETURNING SIGNED CONSENT FORM TO: maria.gibbons@mail.itsligo.ie OR Maria Gibbons, CSSLT, Shantalla Health Centre, 25 Newcastle Rd., Galway.

Informed Consent Sheet for Teachers: Phase two

A study on primary level schools' teacher's awareness, knowledge and actions surrounding Developmental Language Disorder (DLD) in Delivering Equality of Opportunities in Schools (DEIS) in the West of Ireland.

PARTICIPANT INFORMATION SHEET

You are invited to take part in a research study. It is important for you to understand *why* this research is being carried out and *what it will involve* before you decide whether you would like to *take part*. This Information Sheet has been written for you. It is essential that you read it and discuss it with one of the researchers or anybody you wish. Please ask whatever questions you have. Further information about the study can be provided. Take time to decide if you wish to take part.

WHAT IS THIS STUDY ABOUT?

The aim of this study is to investigate the impact of a webinar on primary level schoolteachers' in DEIS schools; awareness, knowledge, and actions in relation to Developmental Language Disorder (DLD).

WHAT WILL I HAVE TO DO?

If you agree to participate in this study, I will first ask you if you are currently employed by a DEIS primary level school. You will be invited to take part in an online continual profession development (CPD) workshop. This will involve completing a pre-questionnaire, watching a 30–40-minute webinar on DLD and completing a post-questionnaire. This will take between 50-60 minutes. The questionnaire answers will be kept safe in accordance with the Data Protection Act (2018) and in line with HSE data protection policy (2019).

WHAT ARE THE POSSIBLE BENEFITS OF TAKING PART?

Currently, DLD is a low recognition, high-cost public health issue in Ireland. There is a need to highlight it as a priority within the health and education sector. This research aims to investigate a method of increasing teacher's awareness, knowledge and actions surrounding DLD in DEIS primary schools to inform DLD service development and health promotion. Increased awareness, knowledge and actions will hopefully bring about greater outcomes for individuals with DLD, their families and society.

WHAT ARE THE POSSIBLE DISAVANTAGES OF TAKING PART?

A possible disadvantage to you is the time it takes to be involved in the CPD.

DO I HAVE TO TAKE PART?

No. If you do decide to take part, you will be given this Information Sheet to keep and asked to sign a Consent Form.

WILL MY TAKING PART BE CONFIDENTIAL?

Yes. All information collected about you during the research will be kept confidential. Your will be assigned a participant number and it will not be possible for you to be identified in any published reporting of the data. All data will be kept on the principal researcher's computer that is password protected. All anonymized data will be kept on the principal researcher's computer that is password-protected for up to ten years.

WHO ELSE IS TAKING PART?

Other primary level DEIS schoolteachers currently employed by a DEIS school and working in the West of Ireland.

WHAT IF SOMETHING GOES WRONG?

In the unlikely event that something goes wrong during the CPD workshop, stop the session and contact the principal researcher on: maria.giboons@mail.itsligo.ie.

WHAT WILL HAPPEN AT THE END OF THE STUDY?

Learning from study will identify if a webinar is an efficient and effective method of increasing primary level teachers in DEIS schools' awareness, knowledge and actions surrounding DLD. Results will be summarized in a report at the end of the study and may be published in scientific journals and presented at conferences, again without any breach of confidentiality. All anonymized data gathered from the research will be password-protected and stored securely and safely in the principal researcher's office for up to 10 years.

WHAT IF I HAVE QUESTIONS OR DO NOT UNDERSTAND SOMETHING?

If you do not understand any part of the research, please contact a member of the research team. It is our priority that you feel completely comfortable during the research.

WHAT IF I CHANGE MY MIND DURING THE STUDY?

You can withdraw from the study at any time without giving a reason. Such instances will be dealt with in a sensitive and confidential manner.

ETHICS PERMISSION

This study has been approved by the Ethics Research Committee Board, Merlin Park Hospital, Galway (Ref number: C.A. 2379).

If you have any concerns about the study and wish to contact someone independent, you may contact:

Administrator
Clinical Research Ethics Committee
Main Administration Building
Merlin Park University Hospital, Galway **Tel:** 091 – 775022
Email: colette.collins@hse.ie

FURTHER INFORMATION

If you would like to obtain further information about the nature of the study, you can do so by contacting:

- Principal researcher: MSC Researcher: Maria Gibbons, Clinical Specialist Speech & Language Therapist, HSE-West. Email: maria.gibbons@mail.itsligo.ie
- Research supervisor: Karen Coughlan PhD, Assistant Lecturer Health and Exercise Science, School of Science, IT Sligo, Ash Lane, Sligo. Email: Coughlan.karen@itsligo.ie

INFORMED CONSENT

I have been invited to participate in research about my awareness, knowledge and actions surrounding DLD. **I have read the participant information sheet. I have had the opportunity to ask questions about it and any questions I asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.**

Print Name of Participant_____

Signature of Participant _____

School Name: _____

Date _____

A copy of this Informed Consent Form has been provided to the participant.

Print Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

PLEASE INDICATE YOUR INTEREST TO PARTICIPATE BY RETURNING SIGNED CONSENT FORM TO: maria.gibbons@mail.itsligo.ie OR Maria Gibbons, CSSLT, Shantalla Health Centre, 25 Newcastle Rd., Galway.

Table 3: Phase I: Teacher participant details

Participant reference	**Gender M/F**	**Current role**	**Focus group 1 or 2**	**School location Urban/Rural**
T1	F	Mainstream teacher	1	Urban
T2	F	Special education teacher (SET)	1	Urban
T3	M	SEN Coordinator & SET	1	Urban
T4	F	Special education teacher (SET)	2	Rural
T5	F	Special class teacher	2	Rural
T6	F	Mainstream teacher	2	Rural
T7	F	Special class teacher	2	Rural

Table 4: Phase I: Child participant details

Participant reference	**Gender M/F**	**Age**	**School type Urban/Rural**	**Individual or paired interview**	**In-school / Virtual platform**
C1	M	9	Rural	Paired	In-school
C2	F	10	Rural	Paired	In-school
C3	F	11	Rural	Individual	Virtual platform
C4	M	10	Urban	Individual	In-school
C5	M	9	Urban	Individual	In-school
C6	F	11	Urban	Individual	In-school
C7	F	11	Urban	Individual	In-school

Table 5: *COREQ checklist* (Tong et al., 2007)

Domain 1: Research term & reflexivity		
No.	**Item**	**Details**
Personal characteristics		
1	Facilitator	Author one = Researcher one = Facilitator of groups.
2	Credentials	BSc, CORU registered Speech & Language Therapist: SL019245.
3	Occupation	Clinical Specialist Speech & Language Therapist.
4	Gender	Female .
5	Experience	Limited experience in focus groups and qualitative analysis.
Relationship with participants		
6	Relationship established	Introductions made via email/phone to school principal who forwarded details to relevant potential participants. Interested participants contacted researcher and received follow up email with details of research and informed consent forms. Facilitator introduced herself at the start of each focus group/interview.
7	Participant knowledge of facilitator	Facilitator familiar to teachers of one focus group (FG2). Facilitator unknown to all other participants.
8	Facilitator characteristics	Assumptions made in hypothesis based on literature and experience. Researcher bias as DLD is her area of specialism. Researcher previously known to teachers in FG2.
Domain 2: Study Design		
Theoretical framework		
9	Methodological orientation and Theory	Inquiry approach and framework method analysis.
Participant selection		
10	Sampling	Purposeful sampling.
11	Method of approach	Email/ follow-up phone call.
12	Sample Size	Teacher focus groups: 7. Child focus groups: 7.

13	Non-participation	Participants informed in writing and verbally during focus group/interview that they can withdraw at any time and/or do not have to answer a question if they do not wish to.
Setting		
14	Setting of data	Participants schools & 1 via online platform (child at home).
15	Presence of non-participants	No for all focus groups and interviews except the online child interview. The childs' mother was in the background of this interview.
16	Description of sample	Teachers in a DEIS primary school in County Galway, Ireland. Children with DLD aged 9-12 years currently attending DEIS primary school in County Galway, Ireland.
Data collection		
17	Interview guide	Topic guide piloted and included in appendix.
18	Repeat interviews	One focus group for teachers. Children were seen twice.
19	Audio/Visual recording	Audio-recording
20	Field notes	Written field notes taken during the focus groups and interviews. Audio-recorded memos taken immediately after the focus groups/interviews.
21	Duration	Teacher focus groups: 60 minutes. Children paired interviews: 20 - 30minutes. Children interviews: 15-20 minutes.
22	Data saturation	Yes, for the purpose of this study.
23	Transcript returned	Yes.
Domain 3: analysis and findings		
Data analysis		
24	Number of data coders	Two.
25	Description of coding tree	Cases→ codes→categories→ themes within ICF framework.
26	Derivation of themes	Inductive and deductive.
27	Software	No.
28	Participant checking	Yes, during the focus groups/interviews for teachers and children. Teachers were sent copies of their transcription and of themes

		generated for participant checking via email. Teachers were invited to respond with any comments or changes. One teacher contacted the researcher confirming the accuracy of the transcription and coding.
Reporting		
29	Quotations present	Yes.
30	Data and findings consistent	Yes.
31	Clarity of major themes	Yes.
32	Clarity of minor themes	Yes.

Topic guides 1 & 2: teachers & children

Topic guide 1: Teachers

Question 1

Think for a moment about a service/professional you liaised with in relation to a child in your school that has a special educational need (SEN). Think of a service/professional that stands out in your mind e.g., social work, family support, psychology, physiotherapy, SLT, OT. Jot down some details about your story of working with that service:

- who was there (the people that stand out as important in the telling of this story),
- when was it,
- why was it a memorable experience,
- what worked well/did not work well,
- what was your feeling towards that service/professional?
- what was your learning from dealing with that service?

Tell the group all about it? Give us as much detail as you can.

Question 2

Think for a moment about a child with DLD/SSLD that you worked with that stands out in your memory. Jot down some details about the story of working with that child:

- how did the child become known to you?
- who was there,
- what was happening,
- how you felt,
- what made this child stand out,
- what worked well/ didn't work in this story,
- what did you learn from working with this child?

Tell the group all about it? Give us as much detail as you can.

Topic guide 2: children

Sample question

Think about a place you really like. Here is some paper and pens. Draw or write down where it is, what does it look like, what you like about the place, how does it make you feel, when do you go there? Tell me/the group all about it? Give us as much detail as you can.

Meeting two

We are going to do two things now.

1. Talk about something you are good at/like doing in school.
2. Talk about/draw the best teacher you ever had.

Question 1

Think about something you are good at/like doing in school. Here is some paper and colours. Draw or write down what you are good at,

- what makes you good at/like doing it,
- when do you like to do it?
- where are you when you do it?
- how do you feel when you are doing it?

Tell me/the group all about it? Give us as much detail as you can.

Question 2

Think about the best teacher you ever had. Here is some paper and colours. Draw or write down what can remember about this teacher,

- what you liked about this teacher,
- what made this teacher different/the best?
- what did s/he do that you liked?
- how the teacher made you feel.

Tell me/the group all about it? Give us as much detail as you can.

Interview techniques

(Adapted from Lyons & Roulstone (2017; 509))

- Funnelling from broad topics to more specific probing about topics e.g., DLD.
- Focus on actions rather than attributes.
- Topic extensions.
- Repetition of the individual's sentence with a rising and expectant intonation.
- Active listening e.g., use of verbal and nonverbal cues.
- Visual methods with aim of generating conversation.
- Avoidance of strategies which could discourage conversation.

Survey 1

Section 1

1. Informed consent
2. Date

Section 2: Background Details

Please tick the category that best describes you.

3. Gender: Male / Female / prefer not to disclose / other
4. Age Range: 21 – 30 years / 31 – 40 years / 41 – 50 years / 51+ years
5. Country where teacher training was undertaken: Ireland/ United Kingdom / other
6. Number of years teaching: 0 - 10 years / 11 - 20 years / 21+ years
7. Number of years teaching in a DEIS School**:** 0 - 10 years / 11 - 20 years / 21+ years
8. School location: rural / urban / suburban
9. Current Role: Mainstream Class Teacher / Special Class Teacher / Special Educational Teacher (SET) i.e. support/ resource / Other (please specify)
10. How challenging do you find your current role? not at all / a little challenging / somewhat challenging / quite challenging / extremely challenging

Section 3: Awareness

Please tick the answer that best describes you.

11. How much awareness do you have of Specific Speech and Language Disorder (SSLD)? none at all / a little bit / some / quite a bit / a great amount
12. How much awareness do you have of Specific Speech and Language Impairment (SSLI)? none at all / a little bit / some / quite a bit / a great amount
13. How much awareness do you have of Developmental Language Disorder (DLD)? none at all / a little bit / some / quite a bit / a great amount
14. How much awareness do you have of Speech, Language, Communication Needs (SLCN)? none at all / a little bit / some / quite a bit / a great amount
15. How often have you used the term Specific Speech and Language Disorder (SSLD) to describe a child's language skills? not at all / a little / Somewhat often / quite often / extremely often
16. How often have you used the term Specific Speech and Language Impairment (SSLI) to describe a child's language skills? not at all / a little / Somewhat often / quite often / extremely often

17. How often have you used the term Developmental Language Disorder (DLD) to describe a child's language skills? not at all / a little / Somewhat often / quite often / extremely often
18. How much training have you received on Speech and Language Disorder? none at all / a little bit / some / quite a bit / a great amount
19. How much training have you received on Developmental Language Disorder? none at all / a little bit / some / quite a bit / a great amount
20. How informed do you feel about Developmental Language Disorder? Not very informed / somewhat informed / very informed

    Section 4: Knowledge of DLD

21. Is Developmental Language Disorder more common than Autism and Attention Deficit Hyperactivity Disorder? Yes/ no/ not sure
22. Is Developmental Language Disorder a hidden disability that affects about 1 in 14 people? Yes/ no/ not sure
23. Is it only children from low socio-economic backgrounds that have Developmental Language Disorder? Yes/ no/ not sure
24. Developmental Language Disorder is a hidden disorder than can run in families? Yes/ no/ not sure
25. Can a child with Developmental Disorder have good speech? Yes/ no/ not sure
26. Can a child with Developmental Language Disorder have difficulty with only one area of language e.g., understanding or expression? Yes/ no/ not sure
27. Can a child with Developmental Language Disorder have a difficulty understanding instructions, concepts, and humour? Yes/ no/ not sure
28. Can a child with developmental Language Disorder have a difficulty making sentences, telling their 'news' and explaining themselves? Yes/ no/ not sure
29. Can a child with Developmental Language disorder have a difficulty starting and sustaining a conversation? Yes/ no/ not sure
30. Are people with Developmental Language Disorder intelligent? Yes/ no/ not sure
31. Can people with Developmental Language Disorder have difficulties learning to read? Yes/ no/ not sure
32. Can a bilingual speaker have Developmental Language Disorder in one language but not in another? Yes/ no/ not sure
33. Can a child with Developmental Language Disorder also have difficulty with attention fine and gross motor skills, speech, and behaviour? Yes/ no/ not sure

34. Can individuals with Developmental Language Disorder achieve social, academic, and professional success with support and understanding? Yes/ no/ not sure

Section 5: Action

Please tick the box that best describes you.

35. How confident do you feel identifying a child with Developmental Language Disorder? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

36. How confident do you feel working with a child with Developmental Language Disorder? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

37. How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

38. How confident are you with the referral process to primary care Speech and Language Therapy (SLT)? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

39. How often have you recommended a referral to primary care Speech and Language Therapy (SLT) in the past for a child with a possible DLD? none at all / One or two referrals total / moderately often / quite often / Extremely often

40. How many children have you referred to primary care SLT in the last three months? None /1 /2 /3 /4 / other

Survey 2

Same as survey 1 with exception of question 40 & 41.

40. How informative did you find this webinar on DLD?

With [1] being "not at all informative" and [5] being "extremely informative"

41. How likely are you to recommend this webinar to a colleague/friend?

With [1] being "not at all likely" and [5] being "extremely likely"

Survey 3

Section 1 & 2

Questions 1-9 as with survey 1 & 2

10. How often have you used the term DLD since attending the webinar? not at all / a little / Somewhat often / quite often / extremely often

Section 3: Actions

11. How confident do you feel identifying a child with Developmental Language Disorder? not at all confident / a little confident / moderately confident / quite confident / extremely confident

12. How confident do you feel working with a child with Developmental Language Disorder? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

13. How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

14. How confident are you with the referral process to primary care Speech and Language Therapy (SLT)? not at all confident / a little confident / moderately confident / quite confident / Extremely confident

15. How many children have you identified as possibly having DLD since attending the webinar? None /1 /2 /3 /4 / other

16. How many referrals have you made to primary care SLT for a child with a possible DLD since attending the webinar? None /1 /2 /3 /4 / other

17. How greatly did the webinar impact on your differentiation? Not at all/ a little/ somewhat / quite a bit/ a great amount

18. Please identify if you have increased the use of any of the following strategies in your teaching /differentiation since attending the webinar. Slowing my rate of speech when giving instructions/ repeating instructions / breaking verbal instructions down into shorter sentences/ using simpler language/ using more visuals e.g., facial expressions, pictures, timetables / giving children more time to ask/answer questions/ giving children more time to complete tasks / using more games and fun activities / encouraging the children to ask for help more / giving more breaks between oral language activities / reducing classroom/background noise and distractions / increasing the use of positive rewards / reducing the workload for children with language needs or DLD /

19: Please outline other strategies that you have used since attending the webinar.

Section 4: Webinar feedback

20. What, if anything, did you find most useful about the webinar?

21. Any other comments or feedback about the webinar?

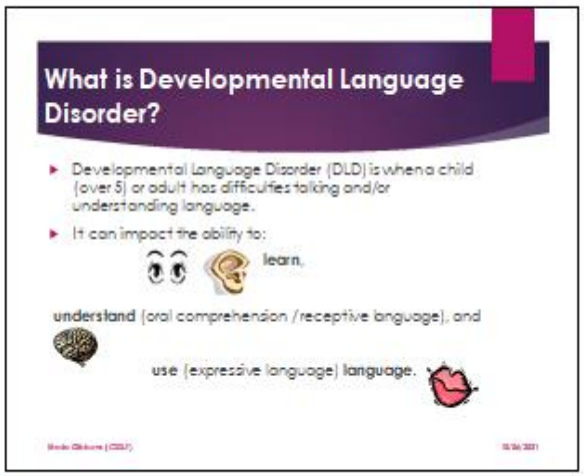
Educational Intervention

1

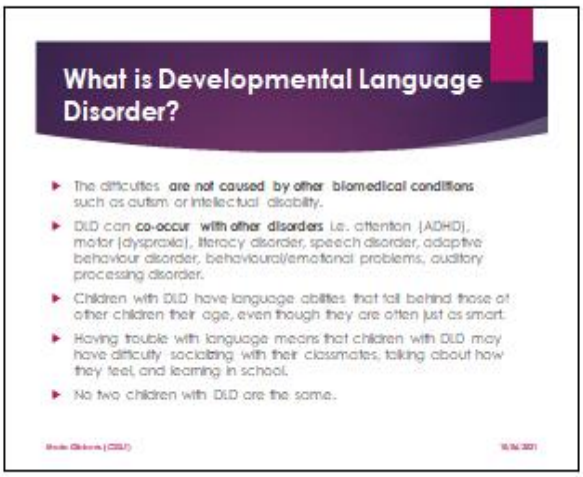
2

3

4



5



6

Terminology

- What terms do you use to describe these children?

Specific speech and language disorder (SSLD)

Specific/ speech and language impairment (S/SLI)

Severe receptive language delay

Very bad pronunciation

Poor listening and attention

Over 600 terminologies used!

7

Terminology

Prefix		Descriptor		Noun
Specific	+	Language	+	Needs
Primary		Speech and Language		Difficulties
Developmental		Speech/Language		Problems
(no prefix)		Language Learning		Impairment
		Speech, Language and Communication		Disability
		Communication		Disorder
				Delay

8

Terminology

Labels matter....

- So people recognize and understand we are talking about the same thing.
- People don't realize it is an important problem if it doesn't have a name.
- To measure and understand the extent of the issue: prevalence & severity.
- Inconsistent terminology means less research funding, less media attention, less public recognition, and fewer services and supports.

R4DLD

- Parents need and value labels.

9

Noticing it

Invisible disability

- You cannot tell if someone has DLD by looking at them.
- Many children who have DLD are very good at hiding their difficulties.
- Many children with DLD go unidentified in school.
- Parents are better at noticing speech difficulties than language difficulties.

10

Noticing it: signs & symptoms

Preschool level

- Use single words rather than sentences when talking.
- Make mistakes when pronouncing words and sounds.
- Not follow instructions.
- Not be able to retell a story with all of the information included.

Primary level

- Avoid putting their hand up in class.
- Have poor listening skills.
- Do not contribute verbally in class.
- Struggle to learn to read.
- Try to opt out of social situations.
- Homework might be a battle.

Secondary level

- Struggle to keep up with the work.
- Be unhappy in and/or have emotional/behavioural problems.
- Refuse to go to school.
- May not have many friends.

11

Noticing it: signs & symptoms

What DLD looks like to the teacher

You have to wonder why are they not participating in class?

- Are they not understanding me?
- Are they not able to process what I'm saying?
- Did they not have the language to actually talk back to me?
- Or that they just don't have the interest?

12

Noticing it: signs & symptoms

What DLD looks like to the child with DLD

- It means like you're talking very fast and people can't understand you.
- I kept messing up my words.
- Teacher say, '**why did you not listen?**'.
- I very not concentrate. That my problem.
- If my brain is turned off, I get half of them (sums) wrong.

13

Knowledge

- Prevalence in Ireland
- Causes / risk factors
- Impacts: reading, learning & social
- EAL

14

Prevalence

How many children in Ireland have DLD?

Greater than 70,000 children.

6% of children in Ireland have DLD (underestimation) (IASLT, 2017).

8% of children in education have SSLD (NCSE, 2018).

15

Prevalence

- Rates of 7-9 % reported in other countries. One study found that 7.5% of all children had DLD.
- About **1 in 14** children have DLD.
- In an average class of 30, two children have DLD.
- **Do a quick calculation to estimate how many students in your school might have DLD. Divide total by 10, and then ¾ of this. How many?**
- DLD population calculator link: https://radld.org/about/did/population-calculator/

16

Prevalence

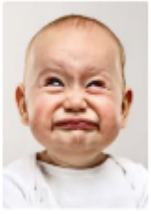
DLD is more common than:

- Attention deficit hyperactivity disorder (ADHD)
- Childhood hearing impairment
- ASD/Autism (7 times more common)

.....BUT

Is neither as well-known or as well funded!

- There is a higher incidence of DLD among socially disadvantaged communities of up to 50%. Prevalence rate of DLD is about 12% among children from a lower SES.



17

Causes & risk factors

- DLD is likely caused by multiple risk factors working together...
- **Genetics:** DLD often runs in families. Less commonly, a child with DLD may be born to parents who don't have this genetic risk.
- **Nutrition:** children who lack certain nutrients in their diet can be at higher risk for DLD than other children.
- **Birth:** prematurity, low birth weight.
- **NOT caused by:** hearing loss, physical abnormality, acquired brain damage, or lack of language experience.

18

Causes & risk factors

Possible risk factors

- Male.
- Family history.
- Poverty.
- Low-level/fewer years parental education.
- Neglect/abuse.
- Prenatal/perinatal problems.

(IASLT, 2017)

19

The impacts of DLD

DLD is a life long condition. Children don't grow out of it.

It impacts on:

- Reading
- Learning
- Social interaction & behaviour
- Mental health

20

DLD and reading

- To become a good reader students need good language skills.
- Students need to know the vocabulary and grammar, and to be able to understand how it fits together.
- 50% -75% of children with DLD develop literacy problems as a result of their problems with sounds (decoding) and/or meaning (reading comprehension).
- **That student that is struggling to read may have DLD.**

- 8 times more likely to have reading difficulties
- 6 times more likely to have significant spelling problems
- 12 times more likely to face all three of these difficulties combined
- 4 times more likely to struggle with math

21

DLD impacts directly on learning

- Following instructions
- Engaging in class discussion
- Answering questions
- Group work

All of the above require language skills, so a student with DLD will struggle with learning also.

That student who is struggling to keep up may have DLD.

22

Social impacts of DLD

- Students with DLD may struggle to keep up with the nuances of peer interactions and so get left out.
- One study found 81% of all students with SEMH (social, emotional and mental health) needs had language needs.
- And a student who does not know they have DLD may think of themselves as 'stupid', which may then in turn impact on mental health.
- **That student who struggles to 'fit in' may have DLD.**

23

DLD and mental health

- People with DLD are 6 times more likely than others to experience clinical levels of anxiety and 3 times more likely to have clinical depression.
- Girls with DLD are 3 times more likely to experience sexual abuse.
- Boys with DLD are 4 times more likely to engage in delinquent behaviour.
- High rates of individuals with communication difficulties and language disorders among those in prison. (NZ, 64% of young offenders had a language impairment).
- Adults with DLD are twice more likely to go over a year without employment than other adults.

24

English as an Additional Language (EAL)

- For children who learn English as a second language, it may take:
- **2-3 years** to develop **basic interactive conversational skills (BICS).**
- **5-7 years** to develop **cognitive-academic language skills (CALP).**
- If a child has a language difficulty, the problem is with **not the number of languages.**
- A difficulty in a first language means there will be a difficulty in the second language (English). However, a difficulty with the second language (English) does not necessarily mean there is a difficulty with the first language.
- **If a child has DLD it will affect all languages.**
- Identifying and assessing DLD in a child with EAL can be tricky.

25

EAL

Things to consider....

- How is the child progressing in his/her first language?
- How much exposure has the child had to English to date?
- What quality of English is the child hearing in different environments?
- Is there any family history of speech, language or literacy difficulties? Do any siblings in the school have similar issues?
- Ask the child....'which language are you better at?',
- Monitor academic progress in relation to other EAL peers.
- Are there any other developmental, behavioural, social-emotional concerns?
- Remember no two (EAL) children are the same as the each have different exposure to language at home.
- **Remember: EAL does not cause DLD, it just makes it trickier to identify!**

26

BILINGUAL Q & A

What is the most common indicator of DLD in bilinguals?	Persistent grammatical errors in BOTH languages.
Should we expect bilinguals' languages to influence each other?	Yes. Language influence is a natural outcome of hearing more than one language.
Are bilinguals typically delayed in both languages?	Typically bilinguals may seem delayed in 2 languages if we only look at 1 language. We need to account for what they know in each language.
Won't children with DLD become more confused if they have exposure in to 2 languages?	There is no research that shows that 2 languages are harder for children with DLD than 1 language is for children with DLD.
Should bilingual families use only one language if their child has DLD?	NO! Families should provide rich conversation and interactions in whatever language(s) they speak.

@HABLAlab

27

Actions

- What you can do to address the problem
- Referral to primary care SLT
- Further resources & supports

28

What can you do?

- Take a closer look at students with reading, learning or social difficulties.
  - **Just ask 'could it be language?'**
- Chat to the **student** one to one.
- Observe their responses to whole class instructions.
  - Students with DLD may be good at copying others' leads, and so their difficulties may NOT be obvious.

29

Take action

- Talk to **parents**
  - But because there is low awareness of DLD many parents may also not be aware.
- Talk to your **school special education** lead/ specialist/ SENO.
- **Refer to specialist services**, such as Primary Care **Speech and Language Therapy.**
- Remember you need the **parent to sign the referral form.**
- Return to your **local HSE health Centre or to: SLT Department, Shantalla Health Centre, 25 Newcastle rd., Galway.**
- Phone SLT DEPT with queries: **091-546010** (Shantalla Health Centre)

The right support can make a difference.

30

31

Take action

FOLLOW UP

- I will email you in March……
- have you considered DLD in your differentiation
- how many children have you identified that may have DLD
- how many referrals (if any) have you/your school made to primary care SLT

…….since attending the webinar?

32

Take action

Classroom strategies for supporting students with DLD

Source: NCCD (2020) Podcast Classroom Adjustments: Developmental Language Disorder

DLD AWARENESS DAY 16 OCTOBER 2020

- **TIME**
- **CHUNK & BREAK DOWN**
- **VISUALS & CONCRETE EXAMPLES**
- **ADJUST YOUR LANGUAGE**
- **REDUCE COGNITIVE LOAD**
- **COLLABORATE WITH STUDENTS**

THINK FORWARD EDUCATORS

33

What you are doing already

Teacher comments

- **SLT**: "Work on a programme together".
- **SET**: SET or resource teacher…"your right-hand woman".
- **Breaking things down.**
- **Differentiated** curriculum.
- **Visual** schedules, timetables, non-verbal cues. "They really need it visually".
- Support **social skills.**
- **Classroom environment** "the atmosphere in the classroom and the **caring**" / "An awful lot of talking goes on, especially in the older classes".

Teacher comments

- **Onward referral**: SLT, OT, psychology.
- **Preparation** for transition to secondary school.
- "Getting the **parents** on board" / "communicating with parents".
- **Pastoral care** of the school.
- **Strategies.**
- Art.
- Time.
- Role reversal.
- Repeating instructions. "like get them to repeat back instructions".

34

What you are doing already

Children comments

Fun

- "Um, she was fun and I we play, we playing games and great games and the trips, I was having fun with the trips and it was making me focus".

Time

- "Em, that I like to take my time, going through them and that I don't rush them".

Ask to repeat

- You can ask her "say it again please?"

Ask for help

- "He says [teacher] when we need help just ask him".

Children comments

Manageable workload

- "She doesn't give us a lot of homework".

Rewards

- "And we got cake", "gave me dojo points", "a popcorn party".

Outdoors

- "She brings us outside to fresh air".

Kindness & respect

- "He's really nice".

Noise

- "She doesn't roar that often".
- "Please, and not too loud".

35

Resources & supports

- Visualising and verbalising (Nanci Bell).
- Grannies Candles.
- Rhodes to Language (Anna Rhodes, Sage publications).
- Mind maps (Tony Buzzan).
- Jean Gilliam DeGaetano resources available from outside the box learning.
- No Glamour language/ auditory processing etc.
- The processing programme (levels 1, 2 & 3 Super Duper publications)
- Language & turn-taking games e.g. yes/no, 5 second rule, guess who, headbands, don't panic, Jenga, uno, etc.

36

Further resources

- **Language screeners:** https://dldandme.org/school-language-screening/
- Ncse.ie
- www.humber.nhs.uk/services/paediatric-slt.htm
- http://strathprints.strath.ac.uk/32807/1/language_therapy_manual.pdf
- www.speechlanguage-resources.com
- http://www.speechlanguage-resources.com/free-language-activities.html
- http://www.speechlanguage-resources.com/shared-book-reading.html
- http://www.speech-language-development.com/guess-who.html/

37

Further supports: Learn more

- IASLT.ie
- Radld.org
- Dldandme.org
- naplic.org.uk/dld

38

Recap: DLD Quiz

#1 WITH SUPPORT AND UNDERSTANDING, INDIVIDUALS WITH DEVELOPMENTAL LANGUAGE DISORDER CAN ACHIEVE SOCIAL, ACADEMIC AND PROFESSIONAL SUCCES	TRUE / FALSE
#2 PEOPLE WITH DEVELOPMENTAL LANGUAGE DISORDER CAN HAVE DIFFICULTIES LEARNING TO READ	TRUE / FALSE
#3 DEVELOPMENTAL LANGUAGE DISORDER IS A HIDDEN DISABILITY THAT AFFECTS APPROXIMATELY 1 IN 14 PEOPLE	TRUE / FALSE
#4 PEOPLE WITH DEVELOPMENTAL LANGUAGE DISORDER ARE NOT INTELLIGENT	TRUE / FALSE
#5 A BILINGUAL SPEAKER CAN HAVE DEVELOPMENTAL LANGUAGE DISORDER IN ONE LANGUAGE, BUT NOT THE OTHER	TRUE / FALSE
#6 A CHILD WITH DEVELOPMENTAL LANGUAGE DISORDER MAY ALSO HAVE DIFFICULTIES WITH ATTENTION, FINE AND GROSS MOTOR SKILLS, SPEECH AND BEHAVIOUR	TRUE / FALSE
#7 ADOLESCENTS WITH DEVELOPMENTAL LANGUAGE DISORDER DON'T BENEFIT FROM SPEECH LANGUAGE THERAPY	TRUE / FALSE
#8 ONLY CHILDREN FROM LOW SOCIO-ECONOMIC BACKGROUNDS HAVE DEVELOPMENTAL LANGUAGE DISORDER	TRUE / FALSE
#9 THE CAUSE OF DEVELOPMENTAL LANGUAGE DISORDER IS UNKNOWN, BUT IT CAN RUN IN FAMILIES	TRUE / FALSE
#10 DEVELOPMENTAL LANGUAGE DISORDER DOES NOT AFFECT ADULTS	TRUE / FALSE

39

Questions

?

40

Survey 2

- Please complete survey 2 now.

41

Key references

- Bishop, D. V. M. (2010) "Which neurodevelopmental disorders get researched and why?" PLOS One, 5(11), e15112.
- Bishop D, et al. Phase 2 of CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. J Child Psychol. Psychiatry. 2017;58(10):1068-1080. https://onlinelibrary.wiley.com/doi/epdf/10.1111/jcpp.12721 [Accessed 21 Feb 2020].
- Dockrell J & Hurry J. The identification of speech and language problems in elementary school: Diagnosis and co-occurring needs. Dev. Disabil. Res. Rev. 2018;81:52-64.
- Ebbels S, et al. Evidence-based pathways to intervention for children with language disorders. INT J LANG DISORD. 2019;54(1):3-19.
- Hollo A, Wehby JH, Oliver RM. (2014) Unidentified Language Deficits in Children with Emotional and Behavioral Disorders: A Meta-Analysis. Exceptional Children, 80(2):169-186.
- Irish Association of Speech and Language Therapists (IASLT) (2017). 'Supporting Children with Developmental Language Disorder in Ireland', IASLT Position Paper and Guidance Document 2017. available: [illegible] Information%20on%20Speech%20and%20Language/DLD%20Position%20Paper %20FINAL%20JMA 2017.pdf [Accessed 21 Feb 2020].
- NCSE. Educational Experiences and Outcomes of children with Special Educational Needs: Phase 2 - from 9 to 13. Research Report no. 25. 2018. [illegible] Accessed 6 July 2020.

42

Appendix 2

Raw data: Phase I & II

Extract from transcription from teacher focus group 1

F1: This is the kind of a broader reaching question. So, you can think of a service, a professional that stands out in your mind. So, it could be anything from social work, family support, psychology, physiotherapy, SLT, OT or any service that you liaised with. If you could just jot down some details about your story of working with that service or individual. So, who was there, the people that stand out as important, was important in the telling of the story, when it was, why it was a memorable experience, what worked well or did not work well?

[04:15]

Well, what was your feeling towards that service or professional? What was your learning from dealing with that? I'll just give you a minute and then I'll come to you first, if that's OK T1?

(Long pause)

T1: Yeah, so when I first came to this in 2012, yeah in 2012, I had junior infants and I never taught junior infants before and and, em, there was a few issues coming up in the class with speech disorders and, you know, children not following instructions and being new to that level and to a school.

[05:37]

I actually took great advice from B because she was in the room near me. And so when I got to know B, B, the speech therapist, so I got to know her. And it actually turned out that some of those children in my class were on her books, let's say, in the community. So like like she was a fantastic resource to me, you know, to be able to go and ask a question by her and say, listen, I'm just not sure about this child, you know, getting X, Y and Z, but not this, you know.

[06:04]

And so I found her as a fantastic resource be able to ask questions. And once or twice she was able to come in to the class and actually see the child in the classroom environment, you know, and I suppose that was only because she was, this was her area as well as well as being a speech therapist in the class she was also community based as well in primary care. So, and then when I moved into the language units then, like two years later and she… I just, I just thought the fact that children were getting speech therapist, I never come across a speech and language unit in a school before.

[06:45]

You know, I just couldn't believe the children were getting all of this time, you know one to one

with the speech and language therapist without having to get the parents to go to appointments outside of school. Particularly in a DEIS school where, you know, they might not have transport to cross town, know they might have the capability to actually be able to to make appointments and, you know, keep to timetables, everything. And also, the fact that it was all here. You know, with I just thought that was, I was amazed that all that could be done in school.

[07:15]

And I used to think that every school should have a speech and language therapist, you know, because I saw it from two ends that, like, if you, if you had to, if you were new to a class level, like I was to Junior Infants. I've never taught it before. And there was speech issues coming up and I didn't really know how to, you know, make it better for th-, teach them, how to. You know, I was in speech and language therapy trained so I didn't really know. So it was great to have a speech and language therapist on site to be able to run a question by confidentiality, you know.

[07:49]

And then I moved to language unit I just thought that was just an amazing setup and that I could really see how the children were brought on so much because they had access to a speech and language therapist every single day. And it was immediate. If you noticed something that wasn't right, you know, you were able to speak with your speech and language therapist next door and you'd work on a programme together. It wasn't like I was emailed by that person now and I've to email their parents and get their parents involved because I suppose once they were in the speech and language unit [08:21] their parents are already so involved already and they're open to anything. You know. When you're in a class, you have to involve so much more people. You know get permission from parents. And I think sometimes that's the hardest thing. That's. Some parents, I don't think share the same viewpoint as a teacher, you know, and their perception of their speech or their language is not half as bad as the teacher sees it. And that's probably, I find that the biggest hurdle, trying to explain to parents that the child might need a little bit of extra help in the areas of speech and language.

[08:58]

And I would find maybe with children who come from a home with two languages that they almost nearly… they blame it on oh they just can't speak English, they're fine in in their other language, but often it's not the case that they're having difficulties in their other language as well as English. You know, so.

F1: That's great. So it is like proximity, having someone near you, on site.

T1: Yes,

F1: and having that close connection

T1: communication, yeah.

F1: having people working together and it is more timely or immediate is more supportive particularly in a DEIS school where maybe the parents might not see the problem.

T1: Definitely. Yeah, yeah, yeah, yeah. And I would have had parents in junior infants who wouldn't have turned up to appointments in [place].
[09:53]
They would have missed appointments, and so then you are trying to liaison with the speech and language therapist in [place] and do a little bit of work with the SET teacher here in school. But then sometimes, it seems a little pointless because it's not being done at home then, when they're, you know…

Transcription from children focus group

Extract 1

F1: Have you ever heard of DLD?

Leah: No.

F1: No. Well children who go to =Ms= class have…

Sam: oh,

F1: DLD, developmental language disorder and loads of other children have it.

Sam: some people make fun of me because I have that.

F1: Do they?

Leah: What is that mean?

Sam: It means that you're like talking very fast (cross talk)

Leah: yeah, yeah, yeah

Sam: and people can't understand you.

Leah: That when my mom say Leah, I can't understand you, you talk too fast.

Sam: And that when everyone making fun of me and I get laughed at.

Leah: Yeah, I hate that.

[01:11]

F1: So, you think sometimes developmental language disorder is maybe talking too fast and people laughing at you or people not understanding you?

Sam: yeah.

F1: Yeah, it can be that or it can also be that it can be hard for you to understand other people.

Leah: oh yeah.

F1: Is it ever hard for you to understand other people?

Sam: yeah (cross talk)

Leah: Yes.

F1: Yeah. Like teachers maybe.

Leah: Yeah.

F1: [01:31]
Or moms and dads or who?

Leah: I don't know.

Extract 2

F1: Ok and tell me sometimes does your brain not work?

Sam & Leah: Yeah.

Leah: well yeah sometimes happens that.

F1: And how do you get your brain to work?
Leah: I don't know.

Sam: Do this

[08:29]

F1: Leah, what is it like when your brain doesn't work?

Leah: I don't like it (cross talk)

Sam: Sad

Leah: No, not sad, no it like the sun is shining me in the morning and that is so annoying.

Sam: Like in the morning it was super sunny and the sun was reflecting in my eyes an I was like 'teacher the suns in my eyes'

Leah: yeah and like so annoying you can't even see what when I'm writing. Then my brain. [09:00]
And maths it's that's not working because I can't do it. When the sun is shining. When I do write everything, it's like 'grrr'.

F1: You can do puzzles [09:11]
What else can you do when your brain is working? What can you do.

Sam: maths

[09:14]
Leah: Maths I am kind of good at sometimes. Not much.
F1: Sometimes you are good at maths. Anything else?
[09:19]
Leah: Sport.

F1: Sport. What sports do you like?

Leah: I love going to see who can throw the tennis ball the farthest.

Sam: oh. Like remember G, G was throwing, we were doing like

Leah: Sport

Sam: Yeah.

Leah: the tennis with the ball and was too high and went in the bush.

Sam: Yeah.

F1: Oh my goodness.

Sam: And we got the cake for when teacher was gone. She was gone we had a different teacher. And the teacher told us we were good so she got us a chocolate cake.

Coding summaries

Table 6: Teacher comment coding summary

Code	Comment examples	Facilitator (F)/ Barrier (B)/ Neutral (N)	Number of comments	Category	Theme
Contextual Factors					
Teacher's experience	T2: it was my first experience of special needs	**Barrier**	**B=10**	**Attitudes**	**Environmental Factors**
	T4: I never before encountered a child before who couldn't speak out loud at school				
	T5: when we have a negative experience, it impacts not just the rest of the class or the child in question, but it impacts your whole teaching experience				
	T6: when I came out of college my first job was here				
	T4: my first encounter with professional services would really be the speech and language department	**Neutral**	**N=1**		
Total no. of comments for teacher's experience			**Total=11**		
Teachers' knowledge	T2: I know the sounds he needs work on	**Facilitator**	**F=14**		
	T5: the label I came up with at the time is what he actually turned out to have now				
	T6: like everyone needs listening and attention skills				
	T7: we know we have Google, and we have a degree and we have experience and we know what to do with them and we implement it, but it doesn't always work.				
	T1: I wasn't speech and language therapy trained so I really didn't know	**Barrier**	**B=17**		
	T3: that's the frustration I'm talking about. When you are working hard over in two, four, six-week blocks. Very little progress				

	T4: I don't think I even knew what SLI was or DLD				
	T6: it's not taught in college				
	T7: They're looking at packs and they don't know what to do with them				
Total no. of comments for teacher's knowledge			**Total=31**		
Teacher awareness	T1: You have to wonder why are they not, (participating)	**Facilitator**	**F=21**		
	T2: And you begin to wonder is there another difficulty behind it?				
	T3: I suppose he's at a level now that possibly he will only make small improvements.				
	T4: we had some children presenting with speech difficulties				
	T6: (DLD/SEN) is such a big part of teaching				
	T7: I think a lot of them are misunderstood because they come across as not listening or bold.				
	T1: now there's so much more of it.	**Barrier**	**B=2**		
Total no. of comments for teacher's awareness			**Total=23**		
Teachers' confidence	T3: what you need is that kind of reassurance or can you give us the next phase.	**Facilitator**	**F=4**		
	T6: so probably more confident in knowing what to do and how to support them kids.				
	T1: You start to think it's you	**Barrier**	**B=9**		
	T2: I just felt totally at sea I didn't know what to do.				
	T5: It undermined my confidence				
Total no. of comments for teacher's confidence			**Total=13**		
Total no. of comments for attitudes			**Total=78**		
Support for Teachers	T2: I've had phone calls from the OTs. Giving me loads of work to do with them. I mean, it's so it's so helpful.	**Facilitator**	**F=29**	**Support & Relationships**	

	T3: I think it's important that there is somebody at the end of the phone that can say that's great stuff, that will be normal for at child at that level, keep doing it and come back to me in another couple of weeks.				
	T4: It was very supportive, which when she took the group sessions				
	T6: I still use like loads of the materials that they gave me then, like the Rhodes to language, like the clip semantics				
	T7: I just think teachers are left then to deal with it for the whole year and I don't think we get enough support.	**Barrier**	**B=16**		
	T5: And while it's practical, some of their suggestions for the one, that one within the whole set up might not be practical				
Total no. of comments for support for teachers			**Total=45**		
Collaboration	T1: Work on a programme together (with SLT)	**Facilitator**	**F=9**		
	T3: It was the class teachers; it was the support teachers and everyone working together				
	T5: There were social workers, family support and we gathered several times to try and sort out the problem.				
	T6: Sometimes, like the teacher's opinion isn't as valid	**Barrier**	**B=1**		
	Total no. of comments for collaboration		**Total=10**		
Relationships with other professionals	T3: Rapport that we built with different services		**F=9**		
	T4: T was always very patient with me				
	T3: I just felt all these meetings were undermining all the work the parents were doing and I was doing		**B=6**		
	T5: it was very negative and very confrontational between the two of us.				
Total no. of comments for relationships with professionals			**Total=15**		
Total no. of comments for supports & relationships			**Total=70**		
Proximity of therapy /In-	T1: Every school should have a speech and language therapist		**F=12**		
	T5**:** In school therapy is great				

school therapy	T7: like we're very lucky… we have that (in-school service)		**Services, systems & policies**	
	T6: Would they be able to provide more therapy, you know, to come and work with that child?			
Total no. of comments for in-school therapy		**Total=12**		
Accessing services /navigating the system	T1**:** This was her area as well (reason B was able to link in with teacher in relation to other children in the school)	**F=6**		
	T3: He had been seen by the multidisciplinary team for an AON			
	T6: but it is good that they got that bit of intervention as well.			
	T2: When the service isn't there…then you're in trouble	**B=25**		
	T3: All the different kind of prerequisites before he accessed (service)			
	T7: It's a home service rather than a school service…where the child is 80 percent of the time			
	T1: It's a minefield out there…if you have a child with special needs.			
	T4: we hear some of the professionals, they're out and they're not replaced.			
Total no. of comments for accessing services		**Total=31**		
Language class	T1: I was amazed that all that could be done in school. T1: the children were brought on so much because they had access to a speech and language therapist every single day	**F=10**		
	T7: You do get a chance, especially in the language class (to get to know these kids)			
	T1: I'd never come across a speech and language unit in a school before	**N=1**		
Total no. of comments for language class		**Total=11**		
SET	T1: They would work an awful lot on comprehension	**F=14**		
	T3: there was me and the SET trying to make sense of all the different reports			
	T7: For a lot of them it's the only bit of time and attention they get			
	T3: We found the progress very, very slow and the targets very, very, very, you know, having to review and maybe go back a step regularly.	**B=1**		
Total no. of comments for SEN support		**Total=15**		

Pastoral care of the school	T3: Pastoral care of the school is so important	**F=5**		
	T4: We were trying to do as much as we can here			
Total no. of comments for pastoral care of the school		**Total=5**		
Total no. of comments for services, systems & policies		**Total= 74**		
Teacher actions	T1: Okay we will differentiate it a bit	**F=30**	**Natural environment & human made changes**	
	T2: All I was trying to do was help him fit in with other children			
	T3: Prepare him again for going to secondary			
	T5: I would spend a lot of time doing art, because I think they can get something through there and it relaxes them to be able to speak to you in confidence or to make progress academically if they're happy			
	T7: I remember I made eight referrals to SLT before Halloween with that class			
Total no. of comments for teacher actions		**Total=30**		
Classroom	T5: the atmosphere in the classroom and the caring has to be number one, the education needs would fall into place if that's there. T5: We're seeing the child in the larger setting in the class	**F=3**		
	T1: An awful lot of talking goes on, especially in the older classes	**B=7**		
	T5: They are kind of diluted completely and lost (children with DLD)			
	We have a full curriculum to get through and a full class			
Total no. of comments for classroom		**Total=10**		
Strategies	T4: she would give the children time to answer T4: She used a lot role reversal. I remember that was a big thing with her and she would let them be the teacher and then they would give the instructions back,	**F=11**		
	T6: Definitely using a visual schedule, I saw the value in that. T6: like get them to repeat back instructions			
Total no. of comments for strategies		**Total=11**		
Total no. of comments for natural environment & human made changes		**Total= 51**		
Total no. of comments for environmental factors		**Total=195**		
	T1: They might not have transport to cross town	**B=4**		**Personal Factors**

Living situation/ Home	T4: He was doing, was being parents at home and taking on that responsibility for himself and his younger brother T4: He said they hadn't eaten or had a meal in about three days		**Largely unchangeable factors**	
Total no. of comments for living situation		**Total=4**		
English as an additional language (EAL)	T3: An older brother, we used to communicate with him… to translate from the native language	**F=1**		
	T1: Children who come from a home with two languages…they blame it on 'oh they just can't speak English… but that often isn't the case... they're having difficulties in their other language as well.	**B=5**		
	T2: it's very hard to get to the bottom between the parents… are saying that they're OK in their own language or the parents don't know…			
Total no. of comments for EAL		**Total=6**		
Gender	T2**:** I think it's boys	**B=1**		
Total no. of comments for gender		**Total=1**		
Genetics	T3: No family history	**F=1**		
	T2**:** Maybe it's a genetic thing	**B=2**		
Total no. of comments for genetics		**Total=3**		

Culture	T3: Mom was from a different country	**N=1**		
Total no. of comments for culture		**Total=1**		
Total no. of comments for largely unchangeable factors		**Total= 15**		
Relationship with parents	T1: I was nagging her to get an appointment, to see a particular consultant T2: I was on the same page as the parents	**F=2**	**Somewhat changeable factors**	
	T2: That's half the battle just to get parents on board first	**B=2**		
Total no. of comments for relationship with parents		**Total=4**		
	T2: Parents were fantastic. All they wanted was that the child would settle in school, that he would mix socially, that he would get on with the other kids.	**F=7**		

Parents ability, skills, knowledge	T3: What really brought about a positive outcome was mom in particular and her passion for her child getting the best			
	T1: They might not have the capacity to actually be able to make appointments and keep timetables T1: and mom just wasn't able. You know she had too much going on. You know, she just wasn't able to manage at all.	**B=18**		
	T2: Maybe their parents had issues that were never picked up on			
	T5: his mom had a pretty bad addiction problem,			
	Total no. of comments for parents ability, skills, knowledge	**Total=25**		
Support for Parents /advocacy	T1: I just thought she needed an advocate with her at appointments because… she	**B=3**		
Total no. of comments for support/advocacy for parents		**Total=3**		
Coping style / temperament	T4: It shows his determination	**F=8**		
	T5: I am still in awe of him that he was able to survive all he did and come through			
	T7: He was just beginning to believe in himself			
	T1: Didn't want to do it in the first place	**B=14**		
	T3: He was very naive			
	T5: He was craving attention			
Total no. of comments for coping style / temperament		**Total=22**		
Total no. of comments for somewhat changeable factors		**Total=54**		
Total no. of comments for personal factors			**Total=69**	
Participation Level				
Social skills	T2: He was fitting in very well	**1**	**Performance**	**Participation**
Classroom teaching	T7: I'll never forget the first day he asked me for something. And all he said to me was, "T7, can I have the water of bottle?"	**9**		
	T4: he would partake in some of the work and engage			

	T2: The child was settled and happy in the school			
Total no. of comments for performance		**Total=10**		
			Restrictions	
Class teaching	T1: It was much harder for him to participate in class discussions	**8**		
	T3: 'I don't know', that was his response to everything			
	T7: would have been, you know, a real handful, couldn't sit, couldn't engage, couldn't play, couldn't really be in the classroom nearly T1: Children not following instructions			
Homework	T1: Things like homework became a big battle	**1**		
Social skills	T2: He had no friends	**7**		
	T3: Older kids were taking advantage of him, telling him to do different things and he would get into trouble because he didn't understand			
	T5: He was constantly involved in rows or some sort of disruption			
	T2: He finds I very hard to follow rules and wait for his turn			
Total no. of comments for restrictions		**Total=16**		
Total no. of comments for participation			**Total=26**	
Activity Level				
Literacy	He is able to do it (read)	**2**	**Capacity**	**Activity**
Progress	T3: He had severe difficulties but he is in a better place now	**4**		
Maths	T3: Things he understands; math's, sums	**1**		
Art	T4: Another one of his strengths was drawing	**8**		
	T5: He loved, he would lose himself in art and while he was doing anything with his hands			
Expressive language	T7: He is beginning to learn how to ask questions and explain himself	**1**		
Total no. of comments for capacity		**Total=16**		
Memory	T1: He might have forgotten it	**1**		

Expressive language	T1: Not being able to phrase it T1: Found it really hard to tell stories and sequence events	**2**		
Literacy	T1: Struggled with being able to put thought on paper	**3**		
Holistic impact	T2: It's one kind of diagnosis that's affecting everything for this child	**3**		
Speech	T2: Has very, very bad pronunciation	**2**		
Movement	T2: He's just not active at all	**4**		
Voice	T4: But he didn't speak out loud	**6**		
Receptive language/oral comprehension	T7: The recall and comprehension of what he was doing was only, like, four years later settling in for him	**1**		
Total no. of comments for limitations		**Total=22**		
Total no. of comments for activity			**Total=38**	
Body structure & function level				
Diagnosis	T2: Querying DCD	**20**	**Impairment**	**Body function**
	T3: Severe receptive language delay			
	T4: He was a selective mute			
	T7: I suppose a lot of children would present with; they would be comorbid			
Wellbeing	T2: Affecting his well-being	**2**		
Cognitive skills	T5: It was obvious that he was very bright	**1**		
Total no. of comments for impairment		**Total=23**		
Total no. of comments for body structure			**Total=22**	
Physicality	T7: And you could nearly see it, like, in him, like if you'd say something, you could see him trying to process it in his head on his face.	**5**	**Physiology**	**Body structure**
	T2: He just hasn't been using the muscles			
	T3: Very physically, very big, strong, powerful boy			
Total no. of comments for physiology		**Total=5**		

Total no. of comments for body structure	**Total=5**
Total no. of comments for body structure and function	**Total=27**

Table 7: Children comment coding summary

Code	Comment examples	Facilitator (F) / Barrier (B) /Neutral (N)	Category	Theme
Contextual factors			**Natural environment & human made changes**	**Environmental factors**
Classroom	C1: Like in the morning it was super sunny and the sun was reflecting in my eyes and I was like 'teacher the suns in my eyes'	**B**		
	C1: Yes. Like no shouting, quietly and I like my brain is still working.	**F**		
	C2: I not like too much people in the class because it get too loud like. Not a lot of people.	**B**		
	C3: Happy because all my friends have been from junior infants up to that class	**F**		
	F1: and you get peace and quiet in your classroom. C4: not that often, sometime people talk to, talking	**B**		
Total no. of comments for classroom		**12**		
Teacher actions	C1: And we got the cake for when teacher was gone. She was gone we had a different teacher. And the teacher told us we were good, so she got us a chocolate cake.	**F**		
	C1: Other teachers say, 'why did you not listen?'	**B**		
	C2: She brings us outside to fresh air	**F**		
	C3y: When she doesn't really get cross a lot	**F**		
	C4: He's really nice. And if we, if the whole class is messing, he still doesn't give us a lot of work	**F**		
	C5: Um, she was fun and I we play, we playing games and great games and the Irish, I was having fun with the Irish and it was making me focus	**F**		

	C6: Cause he never shouts at us. He never, eh, gives us that much homework	**F**		
	C7: To get, give me dojo points for working hard	**F**		
Total no. of comments for Teacher actions		**6**		
Adult strategies	C2: Sometimes teacher say that again (repeats instructions)	**F**		
	C1: Em, because when you don't do what M says you ask her 'can you please do that again'	**F**		
	C6: He says when we need help just ask him	**F**		
Total no. of comments for adult strategies		**5**		
Total no. of comments for natural environ & human changes			**53**	
Teasing/ bullying	C1: And that when everyone making fun of me and I get laughed at	**B**	**Attitudes**	
	C2: Yeah, I hate that (teasing)	**B**		
Total no. of comments for teasing/bullying		**6**		
Total no. of comments for attitudes			**6**	
Language class	C2: first when I was in this school, I didn't know how to talk, and I didn't know they talking about and it blehblehbleh. Then I had speech and language first and word sheep (laugh).	**F**	**Services, systems & policies**	
	C1: Yeah, because then you don't have to walk hours and hours to the clinic. You just go to school and like 'A, I'm here', and she's like 'great!'	**F**		
	C4: Except for first and second. I go to a different classroom…so I had to wait two years to meet them (friends) again in third class.	**B**		
Total no. of comments for language class		**10**		
Covid 19	F1: do you know why you have your own table? C1: Covid	**F**		
	C2: We really can't see from the mask (if teacher is smiling)	**B**		
Total no. of comments for covid 19		**3**		
School & SET	C1: Oh yeah. We should. We should get money for going to school	**F**		
	C2: And I was in another school	**N**		

	C6: Well, I went to her today. I started going with her today, but I don't know where I'm going tomorrow (to SET)	**F**		
Total no. of comments for school		**10**		
Clinic based SLT	C2: A lot of times (saw the SLT)	**F**		
	C1: Yeah. I grew up and the desk was like up to my knees	**B**		
	C5: My other teach- speech and language teacher taught me some words	**F**		
Total no. of comments for clinic based SLT		**13**		
Total no. of comments for SSP			**36**	
Total no. of comments for environmental factors				**96**
Home / living situation	C1: (a place that you feel happy in) At home, the living room…cause all my family is there	**F**	**Largely unchangeable**	**Personal factors**
	C4: Because I don't have to do any work and I can be on my own and I can do anything for myself (why he likes his room)	**F**		
	Total no. of comments for home	**7**		
Parents	C2: yeah, my mom. She helps me in my house, she gets very cross.	**F**		
	C4: My mother helped me a lot	**F**		
	C6: My mom (taught me how to knit)	**F**		
	Total no. of comments for parents	**12**		
Family	C6: And she's always bossing me around	**B**		
	C6: She says C6 can you get me my charger and I'm normally ignoring her (sister).	**B**		
	Total no. of comments for family	**4**		
Culture/ethnicity	C2: I'm Lithuania(n)	**N**		
	Total no. of comments for culture/ethnicity	**2**		
Religion	C5: Celebrating the holy communion cause people made it, but I didn't cause I do different religion	**N**		
	Total no. of comments for religion	**1**		
EAL	C4: No, I never knew how to speak English until I started going to school	**B**		

	Total no. of comments for EAL	**1**		
Total no. of comments for largely unchangeable factors			**27**	
Interests	C1: I like Lego	**F**	**Somewhat changeable**	
	C2: I really love, like nature, rivers, trees, love nature and climbing on stuff.	**F**		
	C3: Em, I like to talk to them and play football	**F**		
	C4: Yeah, I like reading	**F**		
	C5: I really doing colouring and maths and I like doing…drawing	**F**		
	Total no. of comments for interests	**25**		
Feelings	C1: Sam: Mad, I would box them in the face (if teacher tells him he is not listening)	**B**		
	C2: Sad and angry (when teacher says I am not listening)	**B**		
	C3: Em, I kind of feel happy when I do them (maths)	**F**		
	C4: But really weirdly, a weird feeling (not having any English)	**B**		
	C5: Happy (doing art)	**F**		
	C6: It felt annoying (sister talked over her)	**B**		
	C7: Great (when gets maths correct)	**F**		
	Total no. of comments for feelings	**37**		
Coping style temperament	C6: Well at home, I slam the door so I can be like calmer. Then at school, I normally just don't talk to people (if mad)	**F**		
	Total no. of comments for coping/temperament	**1**		
Total no. of comments for somewhat changeable factors			**63**	
Total no. of comments for personal factors				**90**
Participation (performance & restriction)				
Drawing task	C1: Now I'm going to draw a big bubble with our living room in it	**Performance**		**Participation**
	C2: I'll draw a map			
	Total no. of comments for drawing task = 7			
	C2: Initial, what are initials?			

Questioning/requesting clarification	C3: Can you say it again please?		
	C1: And we say, 'can you say that again please?'		
	C5: What's it called again?		
	Total no. of comments for questioning/ re clarification = 16		
Explaining/ describing	C1: So, your first letter of your name and the first letter of your second name		
	C2: Beautiful waterfall, at first time I saw the waterfall, like the grass and trees and the colour green stuff like that.		
	C3: Em it's quite big, quite wide, and long		
	C4: Well, there is a table with toys beside it and my tablet on the … table and all my books are on it.		
	C5: So, we had to go to bed early		
	C6: It goes two boys pick a girl, then the two girls pick a boy, and the two boys pick a girl		
	Total no. of comments for explaining / describing = 48		
Classroom performance	C5: One time I got two letters right		
	C7: 19, I have (dojo points)		
	Total no. of comments for classroom = 3		
Social skills	C3: That I get to play with my friends		
	C4: Show to my friends and asked them if this was good		
	C2: Cause sometimes I be first and sometimes I be second. A lot of times I was first		
	C6: Play British bulldog		
	Total no. of comments for social skills = 17		
Knitting	C6: I knitted it **Total = 1**		
Working in the shop	C3: Em, I sometimes help up at the counter **Total =4**		
Total no. of comments for performance		**96**	

		Restrictions	
Homework	C5: I forget to bring it **Total = 1**		
Classwork	C2: It is so too hard C6: I'm not that good at drawing **Total = 2**		
Total no. of comments for restrictions		**3**	
Total no. of comments for participation			**99**
Activities (capacity & limitation)			
Progress	C4: I could try **Total = 2**	**Capacity**	
Art	C4: At first, I just drew on my own. Now I'm just being creative…from my head **Total = 1**		
Maths	C1: If my brain is turned off, I get half of them right and half of them wrong but if my brain is turned on, I kind of get them all right. **Total no. of comments for maths = 14**		
Total no. of comments for capacity		**17**	
Speech	C2: My mom say, I can't understand you, you talk too fast	**Limitations**	
	C5: When I was younger, I didn't really know how to talk that well **Total = 2**		
Memory	C4: I don't remember why **Total = 3**		
Attention / concentration	C5: And sometimes I can't really focus **Total = 3**		
Receptive language	F1: can you understand the teacher? C2: sometimes **Total = 1**		
Literacy	C4: I'm not used to writing like this. I use this differently **Total =1**		
Maths	C2: And maths it's not working, I can't do it **Total=2**		
Total no. of comments for limitations		**12**	
Total no. of comments for activities			**29**
Body structure & function			

Physicality	C4: Yeah, and it hurts my fingers **Total = 2**	**2**	**Body structure**
Cognitive skills	C1: Because I do it in my head, I do it in my brain	**6**	**Body function**
	C1: Because I'm very good at thinking		
	C2: Gets your brain working in the morning (doing the puzzle)		
Total no. of comments for impairment (BS & F)		**8**	

Table 8: Comparative qualitative analysis across teachers and children

Body Structure					
Teachers				**Children**	
Codes	**Category**	**No. of comments**	**Code**	**Category**	**No. of comments**
Physicality	**Impairment**	5	Physicality	**Impairment**	2

Body Function					
Teachers			**Children**		
Code	**Category**	**No. of comments**	**Code**	**Category**	**No. of comments**
Diagnosis	**Impairment**	20	Cognitive skills	**Impairment**	6
Well-being		2			
Cognitive skills		1			
Total no. of comments for body function		23	**Total no. of comments for body function**		6
Total no. of comments for body structure & function		28	**Total no. of comments for body structure & function**		8

Activities							
Teachers				**Children**			
Code	**No. of comments**	**Category**	**No. of comments**	**Code**	**No. of comments**	**Category**	**No. of comments**
Art	8	**Capacity**	16	Art	1	**Capacity**	17
Progress	4			Progress	2		
Maths	1						
Expressive language	1						
Literacy	2			Maths	14		

Speech	2	**Limitations**	22	Speech	2	**Limitations**	12
Memory	1			Memory	3		
Receptive language	1			Receptive language	1		
Literacy	3			Literacy	1		
Expressive language	2			Attention/ concentration	3		
Voice	6						
Movement	4						
Holistic impact	3			Mathematics	2		
Total no. of comments for activities			**38**	**Total no. of comments for activities**			**29**
Participation							
Teachers				**Children**			
Code	**No. of comments**	**Category**	**No. of comments**	**Code**	**No. of comments**	**Category**	**No. of comments**
Classroom	9	**Performance**	10	Classroom	3	**Performance**	96
Social skills	1			Social skills	17		
				Explaining/ describing	48		
				Drawing task	7		
				Questioning/requesting clarification	16		
				Knitting	1		
				Working in a shop	4		
Classwork	8	**Restrictions**	16	Classwork	2	**Restrictions**	3
Homework	1			Homework	1		
Social skills	7						
Total no of comments for participation			26	**Total no of comments for participation**			99
Environmental factors							
Teachers				**Children**			

Code	F / B	No. of comments	Category	No. of comments	Code	F / B	No. of comments	Category	No. of comments
Classroom	F=3 B=7	10	**Natural environment & human made changes**	51	Classroom	F=5 B=7	12	**Natural environment & human made changes**	53
Teacher actions	F=30	30			Teacher actions	F=30 B=6	36		
Strategies	F=11	11			Adult strategies	F=5	5		
					Health centre	B=4	4		
Total no. of F/B	**F=44 B=7**				**Total no. of F/B**	**F=40 B=19**			
Teacher experiences	B=10 N=1	11	**Attitudes**	78	Teasing/bullying	B=6	6	**Attitudes**	6
Teacher knowledge	F=14 B=17	31							
Teacher awareness	F=21 B=2	23							
Teacher confidence	F=4 B=9	13							
Total no. of F/B/N	**F=49 B=29**				**Total no. of F/B/N**	**B=6**			
Support for Teachers	F=29 B=16	45	**Support & relationships**	70				**Support & relationships**	
Collaboration	F=9 B=1	10							
Relationships with other professionals	F=9 B=6	15							
Total no. of F/B/N	**F=47 B=23**								

Environmental factors									
Teachers					**Children**				
Code	**F / B**	**No. of comments**	**Category**	**No. of comments**	**Code**	**F / B**	**No. of comments**	**Category**	**No. of comments**
(In-school) SLT	F=12	12	**Services, systems & policies**	74	School/ SEN teaching	F=5 B=1 N=4	10	**Services, systems & policies**	36
Language class	F=10 N=1	11			Language class	F=8 B=1 N=1	10		
School/ SEN teaching	F=14 B=1	15			SLT	F=9	9		
Covid -19	B=2								
Accessing services/navigating the system	F=6 B=25	31			Covid-19	F=1 B=2	3		
Pastoral care of the school	F=5	5							
Total no. of F/B/N	**F=47 B=28 N=1**				**Total no. of F/B/N**	**F=23 B=8 N=5**			
Total no. of F/B/N for all environmental factors	**F=187 B=85 N=1**		**Total no. of comments for environmental factors**	**275**	**Total no. of F/B/N for all environmental factors**	**F=63 B=27 N=5**		**Total no. of comments for environmental factors**	**95**
Personal factors									
Teachers					**Children**				

Code	F / B	No. of comments	Category	No. of comments	Code	F / B	No. of comments	Category	No. of comments
Home/ living situation	B=4	4	**Largely unchangeable factors**	**15**	Home/living situation	F=6 B=1	7	**Largely unchangeable factors**	**27**
EAL	F=1 B=5	6			EAL	B=1	1		
Gender	B=1	1			Parents	F=9 B=3	12		
Genetics	F=1 B=2	3			Family	B=4	4		
Culture	N=1	1			Culture / ethnicity	N=2	2		
					Religion	N=1	1		
Total no. of F/B/N	**F=2 B=12 N=1**				**Total no. of F/B/N**	**F=15 B=9 N=3**			
Relationship with parents	F=2 B=2	4	**Somewhat changeable factors**	**54**	Coping style/ temperament	F=1	1	**Somewhat changeable factors**	**63**
Parents ability, skills, knowledge	F=7 B=18	25			Interests	F=25	25		
Support for Parents /advocacy	B=3	3			Feelings	F=24 B=12 N=1	37		
Coping style / temperament	F=8 B=14	22							
Total no. of F/B/N	**F=17 B=37**				**Total no. of F/B/N**	**F=50 B=12 N=1**			

Total no. of F/B/N for all personal factors	**F=19 B=49 N=1**		**Total no. of comments for personal factors**	**69**	**Total no. of F/B/N for all personal factors**	**F=65 B=21 N=4**		**Total no. of comments for personal factors**	**90**
Total no. of F/B/N for all contextual factors	**F=206 B=136 N=2**		**Total no. of comments for contextual factors**	**344**	**Total no. of F/B/N for all contextual factors**	**F=128 B=48 N=9**		**Total no. of comments for contextual factors**	**187**

Table 9: Contextual facilitators and barriers identified

Category	Code	Environmental factors	
		Facilitators	**Barriers**
Natural environment & human made changes	**Classroom**	• Caring atmosphere. • Teachers see how the child functions as part of a class i.e., 'the bigger picture'. • Quiet classroom.	• High language demands in the classroom. • High teacher workload e.g., teacher has responsibility for a full class and a full curriculum. • Child's position in class e.g., sun shining in child's eyes. • Noise level e.g., too loud.
	Teacher actions	• Differentiate the curriculum. • Social skills teaching. • Doing art. • Referrals to other professionals. • Rewards e.g., cake, dojo points. • Going outdoors for fresh air. • Calm teacher e.g., does not get cross. • Manageable workload for children.	• Being asked/told by the teacher 'why are you not listening?'/ 'you are not listening!'.
	Adult strategies	• Give the children time to answer. • Role reversal. • Visual schedules. • Get the child to repeat back instructions. • Teacher repeats the instruction. • Teacher giving permission to ask for 'help'. • Teacher giving permission to child to ask, 'can you please do that again'.	
	Health centre		• Inconvenience & discomfort e.g., walking to health centre, smell of the building, furniture was too small.

Attitudes	**Teacher experience**		• Lack of experience working with SEN.
	Teacher knowledge	• Knowing about the child's specific need e.g., speech sounds to work on.	• Lack of specific teacher training e.g., in speech and language.
	Teacher awareness	• DLD/SEN is a big part of learning.	
	Teacher confidence	• Reassurance increases teacher confidence.	• Teacher lack of confidence and feeling 'totally at sea'.
	Teasing / bullying		• Being picked on or laughed at by peers.
Supports & relationships	**Support for teachers**	• Regular communication with professionals e.g., phone calls, having a contact number and knowing if you ring that your call will be returned, and query will be dealt with. • Demonstration and modelling of the therapy and techniques. • Recommendation and/or provision of useful materials and resources.	• Limited or no contact or support from professionals e.g., given only a programme, or recommendations. • Individual recommendations given impractical for school/class environment.
	Collaboration	• Working with other teachers and professionals.	• Teachers' opinion not valued as valid.
	Relationship with other professionals	• Allowing time to build rapport with services. • Professionals' patience as this is new learning for the teacher.	• Negative, confrontational meetings that undermine the work of the school and parents.
Services, systems & policies	**SLT**	• Therapist working in schools i.e., teacher can ask them questions and children are seen more often.	• SLT helped the child to talk.
	Accessing services	• Assessment of Need (AON) process. • Knowing what therapist works in what geographical area.	• Prerequisites to access services e.g., 'a minefield out there'. • Lack of services. • Gaps in services e.g., professionals not replaced. • Home based not school-based services.

	Language class	• More SLT. • Children make progress. • You get to know the child. • No transport issues. SLT is in school not the primary care health centre.	• Child separated from friends.
	Special education teaching (SET)	• Opportunity to work on oral comprehension (receptive language). • Reading reports. • Time and attention given to child as an individual. • Incentives e.g., money for children to attend school/SET.	• When progress is slow.
	Pastoral care of the school	• School community involved in the care of the child.	
	Covid-19	• Space e.g., children have their own tables.	• Lack of SLT service or support for teachers due to redeployment of SLTs. • Masks e.g., cannot see if the teacher is smiling.
Category	**Code**	**Personal factors**	
		Facilitators	**Barriers**
Largely unchangeable factors	**English as an additional language (EAL)**	• Translator e.g., having a sibling act as a translator to speak with parents.	• Harder to communicate with parents. • EAL can make it harder to identify DLD/SEN. • Child not having English until starting school.
	Genetics & Gender	• No family history of SEN.	• Family history of SEN. • Being male.
	Home	• Child has alone time.	• Lack of transport to attend appointments. • Difficult social circumstances.
	Family	• Parental help.	Sibling relationships e.g., teasing.

Somewhat changeable factors	**Teacher relationship with parents**	• Parents having similar views/concerns as teachers.	• Teachers and parents have different views on child. • Parents not agreeing to refer their child to other professionals.
	Parent's ability, skills, knowledge	• Good parental insight into child's strengths and needs.	• Unable to make and keep appointments. • Parents have own issues e.g., social, health etc.
	Support for parents		• Not having an advocate.
	Coping style	• Determination. • Survival skills. • Self-belief. • Knowing how to calm down.	• Naïve. • Lack of interest and/or motivation.
	Interests	• Having hobbies and interest e.g., Lego.	
	Feelings	• Happiness.	• Frustration. • Anger. • Weird. • Annoyed.

Table 10: Awareness question scores and Wilcoxon-Signed rank test from survey 1 to survey 2

		Survey 1 (n=102)			Survey 2 (n=78)			Wilcoxon-Signed rank Test Paired Data (=71)				
No.	**Awareness questions**	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**	**Median**	**Negatives**	**Positives**	**Ties**	**Z score**	**p Value**
11	How much awareness do you have of Specific Speech and Language Disorder (SSLD)?	2.53	0.930	2.00	3.44	.940	3.50	3	47	21	-5.658	<0.001
12	How much awareness do you have of Specific Speech and Language Impairment (SSLI)?	2.17	0.924	2.00	3.31	.930	3.00	4	51	16	-6.066	<0.001
13	How much awareness do you have of Developmental Language Disorder (DLD)?	2.15	0.916	2.00	3.59	.829	4.00	2	62	7	-6.864	<0.001
14	How much awareness do you have of Speech, Language,	2.15	0.916	2.00	3.17	.973	3.00	6	50	15	-5.865	<0.001

	Communication Needs (SLCN)?											
15	How often have you used the term Specific Speech and Language Disorder (SSLD) to describe a child's language skills?	2.28	1.129	2.00	2.67	1.245	3.00	14	32	25	-2.782	0.005
16	How often have you used the term Specific Speech and Language Impairment (SSLI) to describe a child's language skills?	1.75	0.864	2.00	2.00	0.967	2.00	9	28	34	-2.780	0.005
17	How often have you used the term Developmental Language Disorder (DLD) to describe a child's language skills?	1.72	0.999	1.00	1.87	1.011	2.00	10	23	38	-2.258	0.024
18	How much training have you received on Specific Speech and Language Disorder (SSLD)?	1.64	0.793	1.00	2.29	0.913	2.00	5	40	26	-5.144	<0.001

19	How much training have you received on Developmental Language Disorder (DLD)?	1.35	0.655	1.00	2.46	0.963	2.00	4	52	15	-6.007	<0.001
20	How informed do you feel about Developmental Language Disorder?	1.65	0.779	1.00	3.28	0.952	3.00	1	67	3	-7.182	<0.001

Figure 6: Word cloud of feedback given by teachers on the educational webinar 2-3 months post-intervention. Data is presented as the forty-five words/phrases used most often in answer to questions 21 and 22 in survey 3.

Table 11: Knowledge question scores and Wilcoxon Signed-rank test from survey 1 to survey 2

		Survey 1 (n=102)		**Survey 2 (n=78)**		**Wilcoxon-Signed rank Test Paired (n=71)**				
No.	**Knowledge questions**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Negatives**	**Positives**	**Ties**	**Z score**	**p Value**
21	Is DLD more common than Autism and Attention Deficit Hyperactivity Disorder?	0.50	0.502	0.87	0.336	4	33	34	-4.768	<0.001
22	Does DLD affect about 1 in 14 people?	0.54	0.501	0.96	0.194	0	30	41	-5.477	<0.001
23	Is it only children from low socio-economic backgrounds that have DLD?	0.84	0.365	0.97	0.159	1	13	57	-3.207	<0.001
24	Is DLD a hidden disorder that can run in families?	0.55	0.500	0.99	0.113	1	33	37	-5.488	<0.001
25	Can a child with DLD have good speech?	0.64	0.483	0.78	0.416	10	21	40	-1.976	0.048
26	Can a child with DLD have difficulty with only one area of language e.g., understanding or expression?	0.44	0.499	0.68	0.470	8	23	40	-2.694	0.007
27	Can a child with DLD have a difficulty understanding instructions, concepts, and humour?	0.80	0.399	1.00	0.000	0	18	56	-4.243	<0.001

28	Can a child with DLD have a difficulty making sentences, telling their 'news', and explaining themselves?	0.79	0.406	0.99	0.113	1	17	53	-3.771	<0.001
29	Can a child with DLD have a difficulty starting and sustaining a conversation?	0.75	0.432	1.00	0.000	0	21	50	-4.583	<0.001
30	Are people with DLD intelligent?	0.85	0.356	0.99	0.113	1	13	57	-3.207	0.001
31	Can people with DLD have difficulties learning to read?	0.69	0.466	0.99	0.113	0	26	45	-5.099	<0.001
32	Can a bilingual speaker have DLD in one language but not in another?	0.19	0.391	0.78	0.416	2	41	28	-5.947	<0.001
33	Can a child with DLD also have difficulty with attention, fine and gross motor skills, speech, and behaviour?	0.70	0.462	1.00	0.000	0	25	26	-5.000	<0.001
34	Can individuals with Developmental Language Disorder achieve social, academic, and professional success with support and understanding?	0.83	0.375	1.00	0.000	0	15	56	-3.873	<0.001

Table 12: Confidence question scores and Wilcoxon-Signed rank test from survey 1 to survey 2

		Survey 1 (n=102)			Survey 2 (n=78)			Wilcoxon-Signed rank Test Paired data (n=71)				
No.	**Confidence questions**	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**	**Median**	**Negatives**	**Positives**	**Ties**	**Z score**	**p Value**
35	How confident do you feel identifying a child with Developmental Language Disorder?	2.07	.978	2.00	3.26	0.746	3.00	1	61	9	-6.897	<0.001
36	How confident do you feel working with a child with Developmental Language Disorder?	2.31	.995	2.00	3.32	0.798	3.00	3	54	14	-6.357	<.0001
37	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD?	2.70	1.070	3.00	3.55	0.892	4.00	5	47	19	-5.597	<0.001
38	How confident are you with the referral process to primary care Speech	2.71	1.104	3.00	3.35	1.042	3.00	10	42	19	-4.448	<0.001

	and Language Therapy (SLT)?											

Table 13: Confidence question scores and Wilcoxon-Signed rank test from survey 1 to survey 3

		Survey 1 (n=102)			**Survey 3 (n=37)**			**Wilcoxon-Signed rank Test Paired data (n=37)**				
No.	**Confidence questions**	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**	**Median**	**Negatives**	**Positives**	**Ties**	**Z score**	**p Value**
17/10	How often have you used the term Developmental Language Disorder (DLD) to describe a child's language skills?	1.72	0.999	1.00	2.54	1.304	2.00	5	20	12	-2.895	0.004
35	How confident do you feel identifying a child with Developmental Language Disorder?	2.07	0.978	2.00	3.19	0.701	3.00	1	27	9	-4.339	<0.001
36	How confident do you feel working with a	2.31	0.995	2.00	3.35	0.789	3.00	2	2	9	-4.084	<0.001

	child with Developmental Language Disorder?											
37	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD?	2.70	1.070	3.00	3.68	0.784	4.00	5	25	7	-4.093	<0.001
38	How confident are you with the referral process to primary care Speech and Language Therapy (SLT)?	2.71	1.104	3.00	3.49	1.146	4.00	8	24	5	-3.559	<0.001
40/16	How many children have you referred to SLT with a possible DLD in the last 3 months / since attending the webinar?	.45	0.895	0.00	0.35	0.484	.00	5	8	24	-0.188	0.851

Table 14: Spearman's Rho correlations between training received and confidence in actions

	Survey 1 (n= 102)	**Survey 2 (n=78)**	**Change (n=71)**
Confidence with	**Training received on SSLD and DLD**		
Identifying DLD	r=0.334, p=0.001	r=0.501, p<0.001	r=0.322, p=0.006
Working with DLD	r=0.417, p<0.001	r=0.502, p<0.001	r=0.349, p=0.003
Recommending referral to SLT	r=0.160, p=0.109	r=0.440, p<0.001	r=0.205, p=0.087
Referral process to primary care SLT	r=0.151, p=.0130	R0=.323, p=0.004	r=0.246, p=0.038

Table 15: Difference within demographic groups on awareness and confidence scores in surveys 1 and 2 and change score.

No.	Question	Gender	School location	Country trained	Current role	Age	No. of years teaching	No. of years teaching in DEIS school
Survey 1 (n=102)								
		Mann Whitney U			**Kruskal Wallis**			
11	How much awareness do you have of Specific Speech and Language Disorder (SSLD)?	Z= 0-.782, p=0.434	Z= -1.200, p=0.230	Z= -1.167, p=0.243	H(3)= 7.113, p=0.068	**H(3) =17.519, p=0.001 21-30yrs – 51yrs+ H(3)= -29.531, p=0.010 31-40yrs -41-50yrs, H(3) =-18.264, p= 0.050 31-40yrs – 51yrs+ H(3) = -27.917, p= 0.003**	**H(2) = 17.932, p <0.001 0-10yrs – 21-30yrs H(2)= -25.788, p=0.001 11-20yrs – 21-30yrs H(2)=-24.167, p=0.001**	**H(2)= 12.867, p=0.002 0-10YRS – 21-30yrs H(2) = -26.622, p=0.001 11-20yrs – 21+yrs H(2)= -17.833, p=0.042**
12	How much awareness do you have of Specific Speech and Language	Z= -1.002, p= 0.317	Z=-1.531, p=0.126	Z=-0.870, p=0.384	**H(3)= 10.790, p= 0.013 Mainstream less than SET - 17.707, p=0.020-**	**H(3)=15.757, p= 0.001 31-40yrs-51yrs+ H(3)= -30.933, p=0.001**	**H(2) = 22.197, p <0.001 11-20yrs – 21-30yrs H(2) = -28.765, p<0.001**	**H(2)=17.229, p<0.001 0-10YRS – 21-30yrs H(2)= -28.626, p<p.001**

	Impairment (SSLI)?					**21-30yrs -51yrs+ H(3)= -27.337, p=0.023**	**0-10yrs – 21+yrs H(2)= -26.515, p=0.001**	**11-20yrs – 21+yrs H(2)= -26.679, p=0.001**
13	How much awareness do you have of Developmental Language Disorder (DLD)?	Z= -0.458, p= 0.647	Z=-0.573 p=0.567	Z= -0.596, p=0.551	H(3)= 7.008, p= 0.072	**H(3) =11.637, p=0.009 31-40yrs- 51+yrs H(3) = -37.400, p=0.004**	**H(2) = 18.119, p < 0.001 11-20yrs – 21-30yrs H(2)= -27.231, p<0.001 0-10yrs – 21+yrs H(2)= -20.558, p=0.010**	H**(2)= 13.533, p=0.001 0-10yrs – 21-30yrs H(2)= -24.826, p=0.002 11-20yrs – 21+yrs H(2)= -23.850, p=0.003**
14	How much awareness do you have of Speech, Language, Communication Needs (SLCN)?	Z=-1.059, p=0.289	Z=-0.448, p=0.654	Z=-0.104, p=0.917	**H(3)= 10.590, p= 0.014 Mainstream less than SET: -15.521, p=0.061**	**H(3)= 8.866, p=0.031 31-40 -51+yrs H(3)= -22.525, p=0.033**	H**(2) = 13.338, p= 0.001 11-20yrs – 21+yrs H(2)=-23.391, p=0.001 0-10yrs-21+yrs H(2)=-18.272, p=0.029**	H(2)= 9.210, p=0.010 **0-10yrs – 21+yrs H(2) = -22.031, p=0.010 11-20YRS – 21+rs H(2)= -**

								17.654, p=0.047
15	How often have you used the term Specific Speech and Language Disorder (SSLD) to describe a child's language skills?	Z=1.356, p=0.722	**Z= -1.986, p=0.047 Rural higher than Urban**	Z=0.491, p=0.624	H(3)= 6.019, p=0.111	**H(3)=11.339, p=0.010** 21-30 -51+YRS H(3)= -31.006, p=p.007	**H(2) = 9.918, p=0.007 0-10yrs – 21+yrs H(2)=-21.348, p=0.008**	H(2)= 4.65, p=0.098
16	How often have you used the term Specific Speech and Language Impairment (SSLI) to describe a child's language skills?	Z=-0.584, p=0.559	Z=-1.956, p=0.051	Z= -1.473, p=0.141	**H(3)= 11.991 , p= 0.007 Mainstream less than SET: -17.896, p=0.013**	**H(3)= 8.369, p= 0.039 21-30 -51+yrs H(3)= -24.031, p=0.051**	**H(2) = 6.902, p = 0.032 0-10yrs – 21+yrs H(2)=-17.798, p=0.027**	H(2)=2.440, p=0.295

17	How often have you used the term Developmental Language Disorder (DLD) to describe a child's language skills?	Z=-0.806, p=0.420	Z=-.0608, p=0.543	Z=1.819, p=0.069	**H(3)= 10.100, p=0.018**	H(3) =4.458, p=0.216	H(2) = 2.088, p=0.352	H(2)=2.637, p=0.268
18	How much training have you received on Speech and Language Disorder?	Z=-1.479, p=0.139	Z= -0.617, p=.0537	Z= -0.550, p=0.582	**H(3)= 12.094 , p= 0.007 Mainstream less than SET: -15.832, p= 0.034**	**H(3) =9.009, p=0.029 41-50yrs – 51+yrs H(3)= -20.050, p=0.042**	H(2) = 5.486, p=0.352	H(2)= 4.392, p=0.111
19	How much training have you received on Developmental Language Disorder?	Z=-1.475, p=0.140	Z= -0.293, p=0.769	Z= -0.238, p=0.812	**H(3)= 9.298, p=0.026 Mainstream less than special class teacher: -31.036, p=0.056**	H(3)= 4.450, p=0.216	H(2) =2.222 , p=0.329	H(2)= 1.194, p=0.550

20	How informed do you feel about Developmental Language Disorder?	Z=-0.422, p=o.673	Z= -0.680, p=0.497	Z=-0.168, p=0.866	**H(3)= 8.691, p=0.034 Mainstream less than special class teacher: -37.820, p=0.038**	H(3)= 2.948, p=0.400	H(2) =4.018 , p=0.134	H(2)=2.040, P=0.361
35	How confident do you feel identifying a child with Developmental Language Disorder?	Z= -0.441, p=0.659	Z=-0.487, p=0.627	Z=-0.454, p=0.650	H(3)= 3.975, p=0.264	H(3)= 4.875, p=0.181	H(2) = 4.658, p=0.097	H(2)= 5.693, p=0.058
36	How confident do you feel working with a child with Developmental Language Disorder?	Z= -1.725, p=0.084	Z= -.709, p=0.479	Z= -1.689, p=0.091	H(3)= 4.941, p=0.176	H(3)= 6.279, p=0.099	H(2) =4.966, P=0.084	H(2)= 3.189, P=0.203

37	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD?	Z= -0.48, p=0.962	Z= -0.0152, p=0.879	Z=-1.074, p=0.283	H(3)= 7.485, p=0.58	H (3)= 2.553, p=0.466	H(2) = 4.508, p=0.105	H(2)=2.655 , p=0.265
38	How confident are you with the referral process to primary care Speech and Language Therapy (SLT)?	Z=-0.429, p=0.668	Z=-0.355, p=0.722	Z=-0.144, p=.886	**H(3)= 9.804, p=0.020 Mainstream less than SET: H(3)= -26.693, p= 0.041**	H(3)=1.444, p=0.695	H(2) =4.022 , p=0.134	H(2)= 2.330, p=0.512
Survey 2 (n=78)								
11	How much awareness do you have of Specific Speech and	Z= -0.913, p=0.361	Z= -0.907, p=0.364	Z= -0.841, p=0.400	H(3)= 1.529, p=0.675	H(3) = 2.598, p=0.458	H(2)=3.779 , p=0.151	**H(2)= 6,327, p=0.042**

	Language Disorder (SSLD)?							
12	How much awareness do you have of Specific Speech and Language Impairment (SSLI)?	Z= -0.629, p=0.529	Z= -0.244, p=0.807	Z= -0.991, p=0.322	H(3)= 2.390 , p=0.495	H(3) =1.937 , p=0.586	H(2)= 2.500 , p=0.286	H(2)= 3.539, p=0.170
13	How much awareness do you have of Developmental Language Disorder (DLD)?	Z= -1.071, p=0.284	Z= -0.860, p=0.390	Z= -0.725, p=0.468	H(3)= 1.895 , p=0.594	H(3) = 2.904, p=0.407	H(2)= 1.190, p=0.552	H(2)= 4.023, p=0.134
14	How much awareness do you have of Speech, Language, Communication Needs (SLCN)?	Z= -1.260, p=0.208	Z= -0.262, p=0.793	Z=-0.059, p=0.953	H(3)= 3.537, p=0.316	H(3) = 2.474, p=0.480	H(2)= 3.127, P=0.209	H(2)=4.560, P=0.102

15	How often have you used the term Specific Speech and Language Disorder (SSLD) to describe a child's language skills?	Z= -0.036, p=0.972	Z= -0.061, p=0.951	Z=-1.030, p=0.303	H(3)=5.551 , p=0.136	H(3) = 4.556, p=0.207	H(2)= 2.572, p=0.276	H(2)=3.048, p=0.218
16	How often have you used the term Specific Speech and Language Impairment (SSLI) to describe a child's language skills?	Z= -0.037, p=0.971	Z= -0.827, p=0.408	Z=-0.842, p=0.400	H(3)= 6.987, p=0.072	H(3) = 3.196, p=0.362	**H(2)= 7.213, p=0.027 0-10yrs – 11-20yrs H(2)=-16.064, p=0.025**	**H(2)=6.139, p=0.046 0-10yrs – 11-20yrs H(2)= -13.567, p=0.043**
17	How often have you used the term Developmental	Z=-0.564, p=0.573	Z= -0.229, p=0.819	Z= -1.347, p=0.874	H(3)= 3.666, p=0.300	H(3) = 0.231, p=0.972	H(2)=0.639, p=0.727	H(2)=2.249, p=0.325

	Language Disorder (DLD) to describe a child's language skills?							
18	How much training have you received on Speech and Language Disorder?	Z=-0.242, p=0.809	Z=-1.061, p=0.289	Z=0.159, p=0.874	H(3)= 2.833 , p=0.418	H(3) = 2.884, p=0.410	H(2)= 2.952, p=0.229	H(2)= 3.095, p=0.213
19	How much training have you received on Developmental Language Disorder?	Z=-0.175, p=0.861	Z= -0.212, p=0.832	Z=-1.242, p=0.214	H(3)= 3.356 , p=0.316	H(3) =3.946, p=0.267	H(2)=1.477, p=0.478	H(2)=1.382 , p=0.501
20	How informed do you feel about Developmental Language Disorder?	Z=-0.765, p=0.444	Z= -0.312, p=0.755	Z= -1.361, p=0.174	H(3)= 3.697, p=0.296	H(3) = .175, p=0.982	H(2)= 1.469, p=0.480	H(2)=3.135, p=0.209

35	How confident do you feel identifying a child with Developmental Language Disorder?	Z=-.540, p=0.589	Z= -.578, p=0.568	Z= -1.422, p=0.155	H(3)= 2.408, p=0.492	H(3) = 3.712, p=0.294	**H(2)=6.777, p=0.034 0-10yrs – 21+yrs H(2)= -15.751, p=0.029**	**H(2)= 6.565, p=0.038 0-10yrs – 21+yrs H(2)= -15.822, p=0.034**
36	How confident do you feel working with a child with Developmental Language Disorder?	Z=-1.017, p=0.309	Z= -0.579, p=0.563	Z=-0.304, p=0.761	H(3)= 1.094 , p=0.779	H(3) = 2.928, p=0.403	H(2)= .429, p=0.807	H(2)=1.337, p=0.512
37	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT)	Z=-0.344, p=0.731	Z=-0.970, p=0.332	Z=-1.549, p=0.122	H(3)= 2.369, p=0.499	**H(3) = 7.845, p=0.049 41-50yrs-51+yrs H(3)= -18.836, p=0.047**	H(2)= 4.257, p=0.119	**H(2)= 8.532, p=0.014 0-10yrs – 21+yrs H(2)= -18.150, p=0.014**

	for a child with a possible DLD?							
38	How confident are you with the referral process to primary care Speech and Language Therapy (SLT)?	Z=-0.962, p=0.336	Z=-0.941, p=0.346	Z= -0.304, p=0.761	H(3)= 7.306, p=0.063	H(3) = 1.870, p=0.600	H(2)= 4.204, p=0.122	H(2)=4.948, p=0.084
40	How informative did you find this webinar on DLD?	Z=-1.009, p=0.313	Z=-1.476, p=0.140	Z=-p.786, p=0.432	H(3)= 3.481, p=0.323	H(3) = 1.631, p=0.652	H(2)=0.750 , p=0.687	H(2)= 1.628, p=0.443
41	How likely are you to recommend this webinar to a colleague/friend?	Z=-0.525, p=0.599	Z= -1.628, p=.0103	Z=-0.785, p=0.433	H(3)= 1.653, p=0.648	H(3) =1.591 , p=0.661	H(2)= 0.378, p=0.828	H(2)=0.299, p=0.861
Change Score between survey 1 and 2 (n=71)								
11	How much awareness do you have of Specific	Z= -1.047, p=0.295	Z=-0.374, p=0.708	Z=-7.36, p=0.462	H(3)=1.617, p=0.656	H(3)= 4.807, p=0.186	H(2)= 3.130, p=0.209	H(2)= 1.712, p=0.425

	Speech and Language Disorder (SSLD)?							
12	How much awareness do you have of Specific Speech and Language Impairment (SSLI)?	Z= -1.431, p=0.153	Z= -0.516, p=0.606	Z=-3.24, p=0.746	H(3)=1.532, p=0.675	H(3)=4.794, p=0.188	H(2)= 4.999, p=0.082	**H(2)=6.125, p=0.047 11-20yrs – 21+yrs H(2)= 15.243, p= 0.041**
13	How much awareness do you have of Developmental Language Disorder (DLD)?	Z= -0.266, p=0.821	Z=-0.506, p=0.613	Z= -0.984, p=0.325	H(3)=1.763, p=0.623	H(3)= 8.643, p=0.034	H(2)=4.860, p=0.088	H(2)=6.861, p=0.032 **11-20yrs – 21+yrs H(2)=15.354, p=0.036**
14	How much awareness do you have of Speech, Language,	Z= -1.059, p=0.289	Z=-.099, p=0.921	Z= -.766, p=0.444	H(3)=1.013, p=0.798	H(3)= 2.658, p=0.447	H(2)=2.139, p=0.343	H(2)= 4.944, p=0.084

	Communication Needs (SLCN)?							
15	How often have you used the term Specific Speech and Language Disorder (SSLD) to describe a child's language skills?	Z= -0.545, p= 0.586	Z=-1.068, p=0.285	Z= -1.634, p=0.102	H(3)= 2.658, p=0.448	H(3)= 2.220, p=0.528	H(2)= 1.090, p=0.580	H(2)=.199, p=0.905
16	How often have you used the term Specific Speech and Language Impairment (SSLI) to describe a child's language skills?	Z=-0.290, p=0.772	Z=-0.068, p=0.946	Z= -1.152, p=0.249	H(3)=4.409, p=0.221	H(3)=3.047 , p=0.384	H(2)=0.833, p=0.659	H(2)=0.410, p=0.815
17	How often have you used the	Z=0.399, p=0.690	Z=-1.295, p=0.195	Z=-.939, p=0.348	H(3)=4.843 , p=0.184	H(3)=.432, p=0.934	H(2)=.925, p=0.630	H(2)= 1.568, p=0.456

	term Developmental Language Disorder (DLD) to describe a child's language skills?							
18	How much training have you received on Specific Speech and Language Disorder?	Z=-0.076, p=0.940	Z=-0.268, p=0.789	Z=-1.082, p=0.279	H(3)= 3.225, p=0.358	H(3)= 2.900, p=0.407	H(2)=2.576, p=0.276	H(2)=3.672, p=0.159
19	How much training have you received on Developmental Language Disorder?	Z=-0.074, p=0.941	Z=-1.409, p=0.159	Z=-.813, p=0.416	H(3)=4.804, p=0.187	H(3)=3.647, p=0.302	H(2)= .762, p=0.683	H(2)=2.248, p=0.325
20	How informed do you feel about Developmental	Z=-0.167, p=0.867	Z=-2.298, p=0.765	Z=-.880, p=0.379	H(3)=3.959, p=0.266	H(3)=.704, p=0.872	H(2)=1.076, p=0.584	H(2)=2.183, p=0.336

	Language Disorder?							
35	How confident do you feel identifying a child with Developmental Language Disorder?	Z= -0.500, p=0.617	Z=-0.906, p=0.365	Z= -0.386, p=0.700	H(3)=0.938, p=0.816	H(3)=0.715 , p=0.870	H(2)=0.466, p=0.792	H(2)=0.387, p=0.824
36	How confident do you feel working with a child with a DLD?	Z=-.807, p=0.420	Z=-0.180, p=0.857	Z=-.026, p=0.979	H(3)=2.562, p=0.464	H(3)=4.916 , p=0.178	H(2)=4.025, p=0.134	H(2)= 4.683, p=0.096
37	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT)	Z=-0.099, p=0.921	Z=-1.375, p=0.169	Z=-0.168, p=0.866	H(3)=0.797, p=0.850	H(3)=0.313, p=0.958	H(2)=0.500, p=0.779	H(2)=0.113, p=0.945

	for a child with a possible DLD?							
38	How confident are you with the referral process to primary care Speech and Language Therapy (SLT)?	Z=-0.812, p=0.417	Z=-0.931, p=0.352	Z= -1.338, p=0.181	H(3)=0.984, p=0.805	H(3)=.653, p=0.884	H(2)=1.006, p=0.605	H(2)= 1.559, p=0.459

Table 16: Difference within demographic groups on action scores in survey 3 and in change score between survey 1 and survey 3

No.	Question	Gender	School location	Country trained	Current role	Age	No. of years teaching	No. of years teaching in DEIS school
Survey 3 (n=37)								
		Mann-Whitney U test			**Kruskal Wallis test**			
10	How often have you used the term Developmental Language Disorder (DLD) to describe a child's language skills?	Z=-0.780, p=0.435	Z=-1.872, p=0.061	Z=-1.548, p=0.122	H(3)= 5.321, p=0.150	H(3)=.461 , p=0.927	H(2)= .017, p=0.992	H(2)=.731 , p=0.694
11	How confident do you feel identifying a child with Developmental Language Disorder?	Z=-1.327, p=0.184	Z=-1.746, p=0.081	Z=-1.170, p=0.242	H(3)= 7.167, p=0.067	H(3)=2.984 , p=0.394	H(2)=4.122 , p=0.127	H(2)=2.942, p=0.230

12	How confident do you feel working with a child with Developmental Language Disorder?	Z=-0.024, p=0.980	Z=-1.227, p=0.220	Z=-1.003, p=0.302	H(3)= 3.314, p=0.346	H(3)= 2.929, p=0.403	H(2)= 4.435, p=0.109	H(2)= 1.680, p=0.432
13	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD?	Z=-0.120, p=0.905	Z=-1.646, p=0.100	Z=-1.618, p=0.106	H(3)= 2.859, p=0.414	H(3)= 2.584, p=0.460	H(2)=3.691 , p=0.158	H(2)=4.425, p=0.109
14	How confident are you with the referral process to primary care Speech and	Z=-0.138, p=.890	Z=-0.213, p=.831	Z=-1.404, p=.160	H(3)= 2.705, p=.439	H(3)=0.401 , p=0.940	H(2)= 3.292, p=0.193	H(2)=0.671, p=0.715

	Language Therapy (SLT)?							
15	How many children have you identified as possibly having DLD since attending the webinar?	Z=-0.169, p=0.866	Z=-1.681, p=0.093	Z=-0.560, p=0.575	H(3)= 2.178, p=0.536	H(3)=1.955 , p=0.582	H(2)=1.929 , p=0.381	H(2)=3.423, p=0.181
16	How many referrals have you made to primary care SLT for a child with a possible DLD since attending the webinar?	Z=-0.752, p=0.452	Z=-0.822, p=0.411	Z=-1.259, p=0.174	H(3)=1.586 , p=0.663	H(3)= 1.389, p=0.708	H(2)=.095 , p=0.954	H(2)=1.028, p=0.598
17	How greatly did the webinar impact on your teaching/differentiation?	Z=-0.627, p=0.620	Z=-0.727, p=0.467	Z=-0.276, p=0.783	H(3)= 5.730, p=0.126	H(3)=0.494 , p=0.920	H(2)=0.764, p=0.683	H(2)=0.104 , p=0.949

Change score between survey 1 and 3 (n=37)								
10	How often have you used the term Developmental Language Disorder (DLD) to describe a child's language skills?	Z= -0.616, p=0.538	Z= -0.508, p=0.612	Z=1.347, p=0.178	H(3)=6.083, p=0.108	H(3)=1.289, p=0.732	H(2)=0.449, p=0.799	H(2)=0.116 , p=0.943
11	How confident do you feel identifying a child with Developmental Language Disorder?	Z=-0.255, p=0.799	Z= -.0452, p=0.651	Z=-1.614, p=0.106	H(3)= 3.969, p=0.265	H(3)=0.767, p=0.857	H(2)=0.833, p=0.659	H(2)=0.061, p=0.970
12	How confident do you feel working with a child with Developmental	Z= 0-.093, p=0.926	Z= -0.773, p=0.439	Z=-1.708, p=0.088	H(3)=4.712, p=0.194	H(3)=4.651, p=0.199	H(2)= 3.213, p=0.201	H(2)= 1.249, p=0.536

	Language Disorder?							
13	How confident are you in recommending a referral to Primary Care Speech and Language Therapy (SLT) for a child with a possible DLD?	Z=-0.595, p=0.552	Z=-0.021, p=0.983	Z= -1.593, p=0.111	H(3)= 3.809, p=0.283	H(3)=0.442, p=0.931	H(2)=0.343, p=0.842	H(2)=0.607, p=0.738
14	How confident are you with the referral process to primary care Speech and Language Therapy (SLT)?	Z= -0.953, p=0.341	Z=-.610, p=0.542	Z=-1.435, p=0.151	H(3)= 5.910, p=0.116	H(3)= .268, p=0.966	H(2)= 1.230, p=0.541	H(2)=.779, p=0.677
16	How many referrals have you made to	Z= -1.102, p=0.271	Z= -.949, p=0.343	Z=-1.659, p=0.097	H(3)=.194, p=0.979	H(3)=.773, p=0.856	H(2)= .346, p=0.841	H(2)=1.529, p=0.466

	primary care SLT for a child with a possible DLD since attending the webinar							

Table 17: Difference within demographic groups on total knowledge score in surveys 1 and 2 and change score.

Demographic variables	**Statistical Test**	**Total knowledge**		
Survey		**1 (n=102)**	**2 (n=78)**	**Change (n=71)**
Gender	**Mann-Whitney U**	Z= -0.779, p= 0.436	Z= -0.409, p= 0.682	Z= -0.634, p=0 .526
School location		Z= 1.869, p=0.062	**Z= -2.010, p=0.044 Rural schools scored higher than urban**	**Z=4.635, p= 0.031, Rural made greater change than urban**
Country where trained		Z=-0.994, p=0.320	Z=-.218, p=0.828	Z=-.529, p=0.597
Current role	**Kruskal Wallis**	H (3) = 7.452, p= 0.059	H (3) =0.817, p=0 .845	H (3) =4.612, p=0.202
Age		H(3)= 2.276, p=0.517	H(4)= 6.350, p= 0.175	H(3)= 5.327, p=0 .149
No. of years teaching		H(2)=.647, p=0.724	H(4)= 5.119, p=0.275	H(2)=3.411, p=0.182
No. of years in a DEIS school		H(2)= 1.083, p=0.582	H(4)= 1.768, p=0.778	H(2)=4.498, p=0.084

Developmental Language Disorder in Ireland - A review of policies to practice; highlighting an unmet clinical need.

By

Maria Gibbons

This project is submitted in part fulfilment of the HETAC requirements for the award of Master of Science (Health Promotion Practice) Degree.

September 2020

Declaration

Title: **Developmental Language Disorder in Ireland - A review of policies to practice; highlighting an unmet clinical need.**

Name: Maria Gibbons

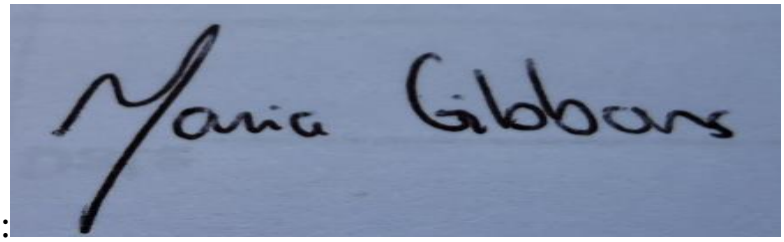
ID Number: S00202015

Supervisor: Dr. Karen Coughlan, PhD

Word Count: 3180

<u>Declaration:</u>

"I hereby declare that this project is entirely my own work and that it has not been submitted for any other academic award, or part thereof, at this or any other education establishment".

Signature: 

Maria Gibbons

Contents

Table of Figures

Table of Table

1.0 Abstract

Developmental Language Disorder (DLD) impacts on an individual's ability to; learn, understand and use spoken language to the detriment of his/her social, emotional, and academic wellbeing. It is a low recognition, high cost, public health issue. It is under documented in Ireland due to; lack of public and professionals' awareness, knowledge, identification and/or parents' ability/choice not to engage with services. Earlier identification and onward referral are critical to ensure appropriate models of support and intervention are put in place, particularly for those from a disadvantaged background, who are at greater risk of DLD.

This paper critically reviewed DLD in Ireland from policies to practice from a health promotion perspective highlighting the unmet need. It revealed many inconsistencies in DLD care across health and education and proposed six cyclically interdependent reasons perpetuating these inconsistencies; 1. lack of shared terminology between SLT and Department of Education and Skills (DES), 2. reduced public and professional awareness, knowledge and identification of DLD, 3. under-reported prevalence of DLD, 4. under-identified need at government level for increased supports/services, 5. inadequate supply of specialist services i.e. Speech and Language Therapists (SLT), 6. few advocates to promote DLD awareness. These require combined top down and bottom-up action.

The need to promote DLD awareness in Ireland is strong. Teachers with adequate training and school settings have been identified as the key to success in this process. Collaborative, universal level, health promotion is essential to mediate against the long-term, negative effects of DLD on an underserved population.

1.1 Key Words: Developmental Language Disorder (DLD), Health Promotion, Teachers, SLTs, Collaboration.

2.0 Overview of DLD in Ireland

DLD is a neurodevelopmental condition that arises in the early years and can be lifelong. It impacts on learning, understanding, and using spoken language despite otherwise 'normal' development and has a substantial impact on everyday social interactions and/or educational progress.[1,5] DLD can have significant implications for; social-emotional development, inclusion, literacy, education, employment, involvement in criminal activity, mental health, and quality of life.[1,3,6-11] It impacts the health, happiness and achievements of many who live with it.[97]

DLD was previously known as specific speech and language impairment (SSLI)[2] within the Speech and Language Therapy (SLT) profession in Ireland and as specific speech and language disorder (SSLD) within the DES. The term DLD was adopted internationally[1,3] by the SLT profession in 2017 in recognition of the need to have one, inclusive term and a common understanding of the disorder to aid identification, diagnosis, and management. Confusingly, it is still classified as SSLD, a low-incidence special educational need (SEN) within the Irish education setting.[4]

2.1 Prevalence

There is an underestimated prevalence of 6% of children in Ireland with DLD[3,11] with more accurate rates of 7-9% reported in other countries.[12] It is more common than autism spectrum disorder (ASD), childhood hearing impairment and Attention Deficit Hyperactivity Disorder (ADHD)[3,13,96] yet is largely unrecognised by society.

In Ireland, approximately one or more children in a classroom of thirty have DLD.[3] The reported prevalence rate of children with SSLD in education (8%)[14] is higher than the reported rate of DLD in health (6%).[3] Although both terms are supposedly synonymous, SSLD is a misnomer for DLD. All children who meet the DES criteria for SSLD[49] may be considered as having DLD but not all children with DLD meet the narrow criteria for SSLD, indicating a higher prevalence of DLD in Ireland than currently on record.[3,11]

2.2 Low socio-economic status

There is a higher incidence of DLD among socially disadvantaged communities[3,8,9,11,16-23] of up to 50%.[15] Children with SEN/disability are twice as likely to be enrolled in Delivering Equality in School (DEIS) schools in Ireland.[11,14,24] DEIS is a programme that provides additional funding to schools that have high populations of children from a low socio-economic status (SES).[11]

2.3 Identification

Poor identification of DLD and its underestimated prevalence is related to the limited professional and public awareness of the disorder.[1,27] DLD is most often diagnosed by SLTs during the primary level school years,[1,3] but not all children are routinely assessed by a SLT. Most activities undertaken in the classroom rely on language[25] and there is a strong relationship between impaired language skills and negative behaviour. There are opportunities for DLD recognition in the classroom, yet it often goes undetected by teachers or psychologists.[26] It is essential that education professionals are aware of DLD[10,16,29,30] to support timely identification, assessment[31] and intervention to improve outcomes for children with DLD,[3,11,21,24,32-34] their families and society.[16,35]

2.4 Public health issue

DLD is recognised as a 'key health priority'[36] and a public health issue.[3,9,16,32,35,37,38] The annual estimated cost of a child with DLD to society in Australia is comparable to the cost of childhood Asthma.[39] From this, the estimated cost of DLD in Ireland is greater than €190 million annually. United Kingdom (UK) based research revealed that for every £1 (€1.12) spent on SLT for children with communication needs, £6.43 (€7.23) is generated through increased lifetime earnings.[35] DLD is an expense to health and well-being that requires immediate investment in Ireland.

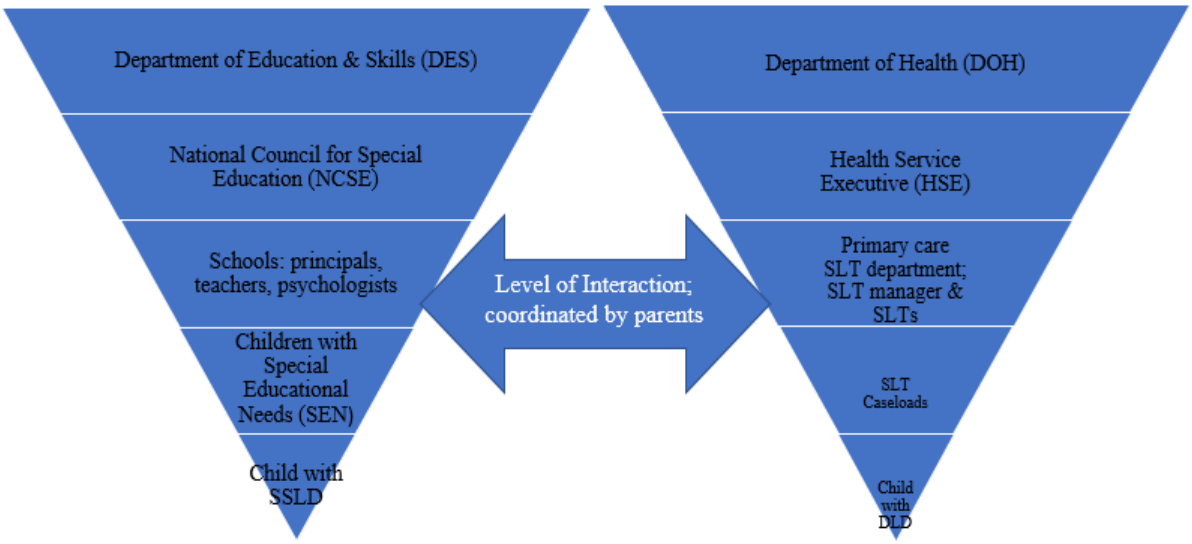
2.5 Aims & objectives

This paper aimed to critically review; 1. DLD care in Ireland from policies to practice, to identify the unmet clinical need and 2. health promotion research that may improve awareness, identification and action in relation to DLD care. Inclusion/exclusion criteria were applied to the search strategy (Appendix 1, Figure 6 & Table 1).

3.0 Governance and perspectives

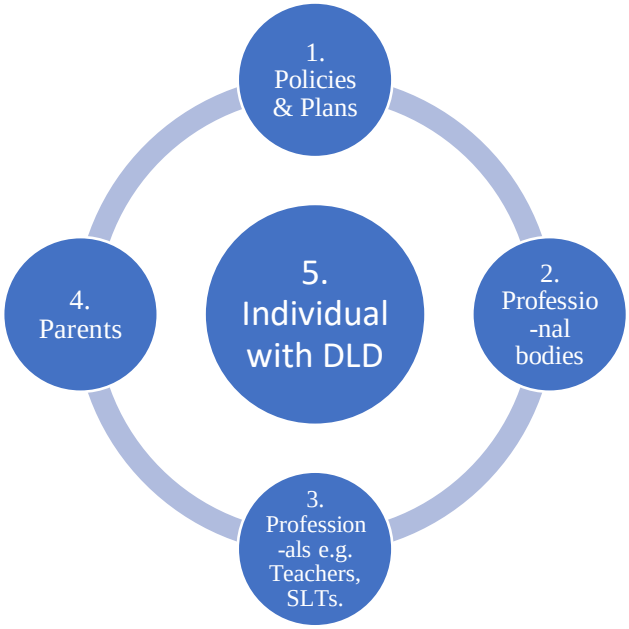
DLD care in Ireland is governed by the Health Service Executive (HSE) via the Department of Health (DOH) and National Council for Special Education (NCSE) via the DES (Figure 1).

Figure 1: Governance structure for DLD care in education and health in Ireland



The perspectives of key stakeholders (SLTs, teachers, parents and individuals with DLD)[11,36] were examined against the backdrop of current polices/plans and practice in Ireland (Figure 2).

Figure 2: Perspectives reviewed in relation to DLD care in Ireland



3.1 Policies/Plans

Several Irish health and education policies/plans, which acknowledge core health promotion principles,[40] align with the needs of DLD care. These are outlined in Appendix 2 (Tables 2 & 3).

3.1.1 Implementation of policies/plans

Most (90%) of the policies/plans reviewed highlighted cross-sectoral working as crucial for success. While this is acknowledged in The Schools for Health in Ireland Framework[41], there is no official policy/plan for cross-sectoral working between health and education for SEN/DLD. DLD care currently rests with the professionals (Figure 1) and is coordinated by parents[3] if they are willing and able to do so.

Wellbeing and equity/inclusion were the second highest goals identified in health, acknowledging the biopsychosocial impact of DLD. In practice, many SLTs are limited to clinic-based, consultative model of service provision[3,11] with pressures to assess greater than those to treat. This preserves a medical model rather than a holistic, school-based model of DLD care in Ireland.

In education, supporting/empowering staff was identified as a goal of equal value to cross sectoral working. This is reflected in three recent changes to education in Ireland; the new 'School Inclusion Model'[42] which involves school-based SLT provision within pilot schools, implementation of circular 13/2017[43] which reviewed the allocation of supports to children based on a school identified need rather than on a professional diagnosis, and the introduction of the new primary language curriculum[44] which highlighted the importance of oral language in the curriculum. These are positive steps but are in their early stages, and their effectiveness is yet to be reviewed.

These overlapping goals exposed the implementation issues in DLD care in Ireland. There is a need for concrete policies/plans to support cross-sectoral, collaborative working for DLD care in practice; to resource the shift from a clinic-based model toward a more holistic, effective, school based, model of care.

3.2 Professional bodies

Two SLT and three teaching professional bodies were identified across Ireland and the UK (Appendix 2, Table 4). UK bodies were included in the review as many SLTs and teachers working in Ireland qualified in the UK.

3.2.1 Implementation of professional body guidelines

Both SLT professional bodies i.e., Irish Association of Speech and Language Therapists (IASLT) and Royal College of Speech and Language Therapists (RCSLT) recognised all core principles of health promotion[40] as important in their DLD documents (Appendix 2, Tables 4 & 5). These bodies engage in DLD health promotion initiatives with little evaluation of their impact[32,38,45] which is likely due to limited finances. IASLT does not receive any state funding, however the Irish autism awareness charity (AsIAm) received €2 million for an 'autism awareness plan' in 2019,[46] validating the need for government investment in such initiatives.

The Irish teaching professional body, Teaching Council Ireland[47] outlined learning areas relevant to DLD in its continual professional development (CPD) framework, Cósan (Appendix 2, Tables 4 & 5). It recognised literacy as a language-based task, a view reflected in the new primary language curriculum.[44] Prior to the roll out of the this curriculum, IASLT[3] emphasized the need to develop closer links between National Council for Special Education (NCSE) and SLTs to allow for collaboration, training and for expertise to be recognized. This has not happened to date.

The Teachers' Union in the UK performs a role more closely aligned to TCI than the Teaching Regulation Agency (TRA), the UK counterpart of TCI. All three education professional bodies flagged supporting/empowering teachers as essential, same as the Irish education policies/plans. This is an unmet need with regards to SEN/DLD.[52,53,55,61,66]

Cross sectoral working and empowering people/workforces were the prominent health promotion goals in relation to DLD/SEN across health/SLT (Appendix 2, Table 6) and education/teaching respectively. They are comparable to those in the policies/plans. However, there is much to be done to ensure that these bodies are supported by government in reality[48)] and not just on paper.

3.3 Professionals

In Ireland, parents, teachers and other professionals refer a child to SLTs who diagnose DLD, and intervention is commonly integrated to some degree into education.[3,32] SLTs and teachers have a three-tiered model of support/intervention that are alike but not identical, particularly within in the top tiers (Tier 3, Figures 3 & 4). Here, SLT makes a distinction between specialist education-based intervention (indirect SLT-led intervention provided by teachers) and specialist direct SLT-led intervention. To date, research has indicated that specialist direct SLT-led intervention is required for the child with DLD to make progress. Importantly,

evidence is emerging that progress can be made when intervention is managed by SLT but delivered indirectly by others i.e. teachers, if they are trained, supported and closely monitored.[32] The resources for this level of supported, collaborative work between teachers and SLTs are not currently in place in.

How a child's difficulty is defined influences the tier of intervention they receive. SLTs and teachers understanding of DLD in Ireland were reviewed (Appendix 2, Tables 7 & 10) highlighting disparities both within and across the two professions.

Figure 3: Continuum of support in schools (NCSE, 2017)[99]

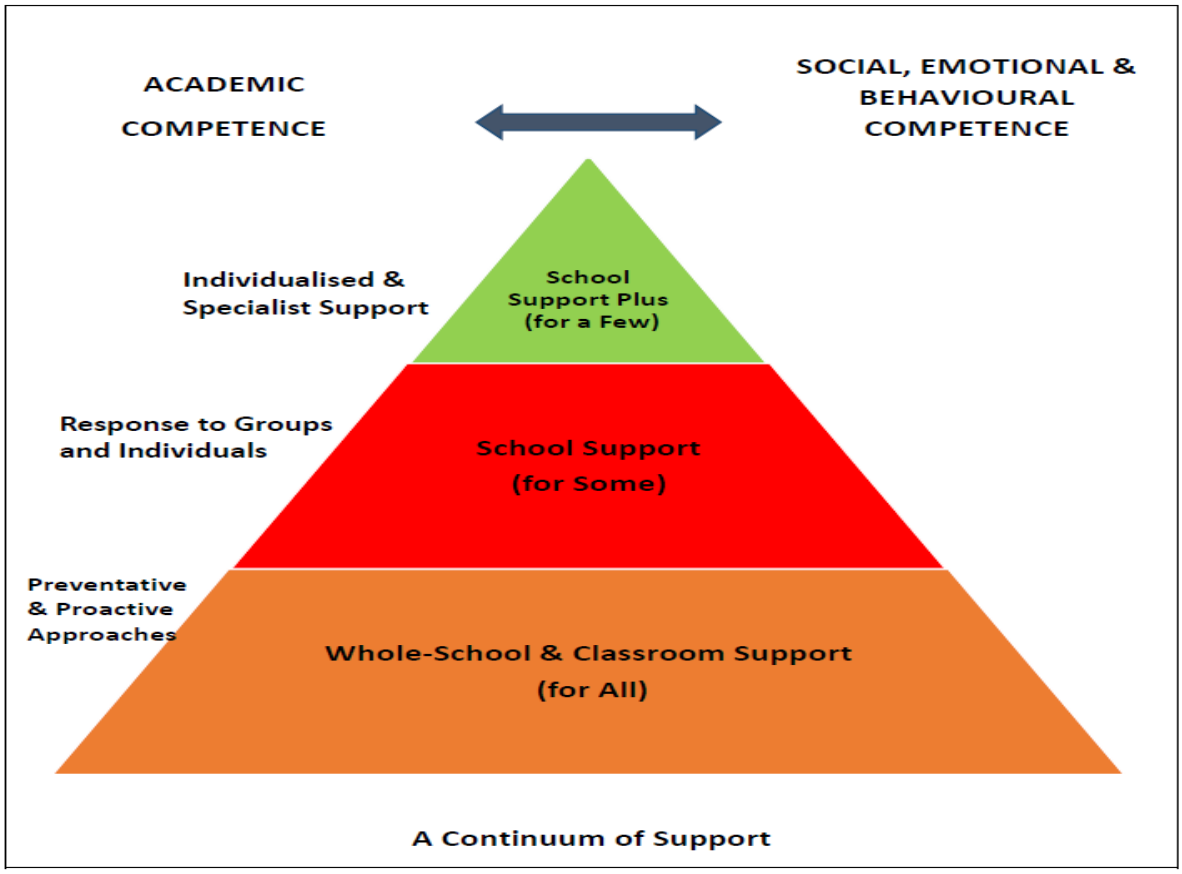


Figure 3. Available at: https://www.sess.ie/special-education-teacher-allocation/primary/continuum-support-primary.

Figure 4: Model of Intervention for language disorders: Education & SLT Services (Ebbels et al., 2019)[32]

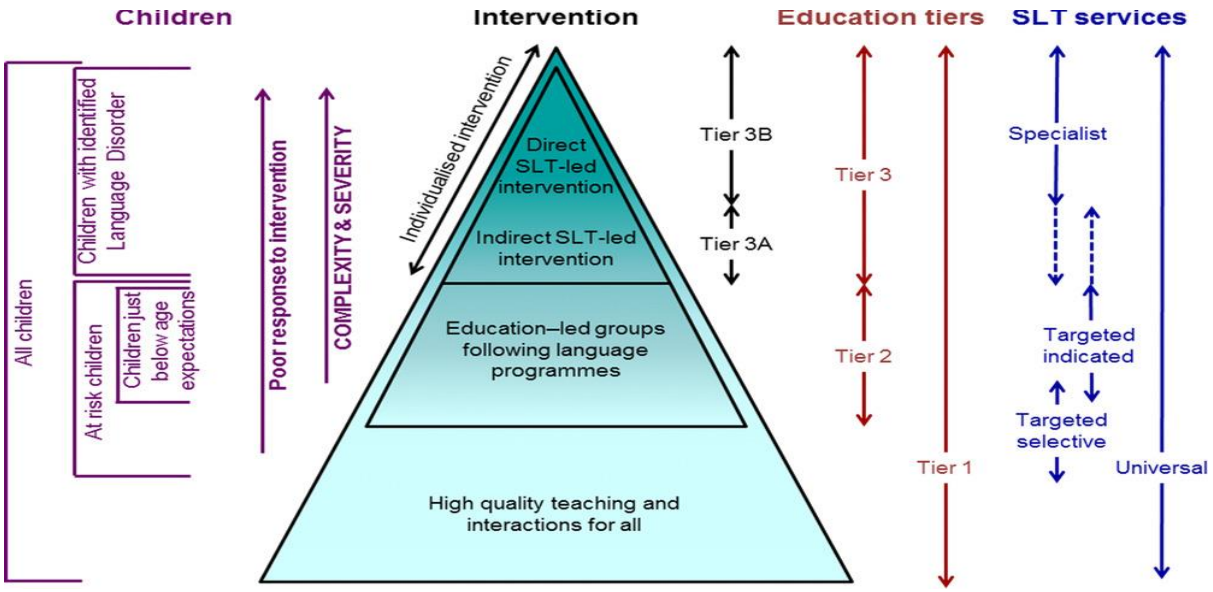


Figure 4. Available at: wileyonlinelibrary.com.

3.3.1 SLTs

In Ireland, SLTs are the only professionals who diagnose DLD. Concerningly, IASLT[3] revealed some errors in diagnosing DLD among SLTs in Ireland i.e., viewing DES eligibility criteria for resource teaching hours[49] as the criteria for a diagnosis of DLD. This is unacceptable, as it is a narrow criterion developed based on resourcing concerns[50] that excludes many children with DLD getting a diagnosis and accessing supports. There is an urgent requirement for the DES to use the more inclusive description of the disorder[3] to avoid confusion, so individuals with DLD may be identified.[3,11,37,97]

3.3.1.1 Accessing SLT

Accessing SLT is an identified barrier in the education research literature[14,51,52-55] (Appendix 2, Table 10) with only one in six children with SEN receiving out of school supports in Ireland.[14] The large numbers of children on waiting lists for SLT and the lengthy wait time to access services have been the subject of several media reports.[56,57,99] At present there are no additional services, resources or funding provided to SLT departments for having a 'DLD heavy' caseload.

3.3.1.2 Service provision

Due to high caseloads and limited staffing, targeted level consultation (Tier 2, Figure 4) rather than specialised level inter-professional collaboration (IPC) (Tier 1, Figure 4) can predominate.[3,11,37] This is inadequate as the specialist skills of SLT led intervention is required for children with DLD[32] such as that found in SSLD classes. Preliminary research suggested that specialist SSLD classes supported by both DOH (SLT) and DES are more effective in yielding positive outcomes in language and quality of life measures than a clinic-based model of intervention for children with DLD.[100] Unfortunately, these classes are few and far between in Ireland with only 63 operating nationally. This is an extremely low number in comparison to the 1577 autism classes[101] country wide, considering DLD has a ten times higher prevalence rate (6%) than autism (0.6%)[102] in Ireland. Increasing the number of SSLD/DLD classes, providing IPC, adequate support and training is likely to be more beneficial than giving worksheets to parents/teachers without accompanying support.[3,37] More SLTs and resources are required to make this a possibility.

3.3.2 Teachers

Teachers have responsibilities to those with SEN including timely identification, assessment, support and onward referral.[31] These are dependent on teacher's awareness, knowledge, identification and actions surrounding the SEN.

3.3.2.1 Teachers understanding of DLD

Teacher's awareness, knowledge, perceptions, experiences and/or identification skills of; stuttering,[58] autism spectrum disorder (ASD),[59,60] speech, language and communication impairments/difficulties/disorders,[25,30,37,61-65] delayed language development,[29] and SEN[51-54,66] were explored internationally and in Ireland.[37,52,54]

Teachers reported limited training,[52,55] resources,[53,66] and confidence in identifying and supporting speech, language and communication needs (SLCN)/SEN.[52,61] Teachers in the UK stated that they never, rarely or only sometimes receive the support they need to teach SEN effectively.[53] The most common action among teachers to support SLCN was to make a referral to SLT and modify their communication approach.[51] The classroom teacher is the best placed professional to effect educational outcomes,[67-69] and is a resource that should be maximised for children with DLD.

3.3.2.2 Training and support

Shared understanding and consistent terminology are recognised as a prerequisite for collaborative working between SLTs and teachers in relation to DLD.[3,37] This necessitates providing teacher training on DLD; to support identification, onward referral,[3,29,30,43,52,54,55,71] collaborative working,[37,87] and self-efficacy.[60] Self-efficacy is recognised as a key determinant in behaviour change i.e. social learning/social cognitive theory.[72] The need to empower, educate, and support teachers is recognised at all levels of the education papers reviewed. This has yet to translate into action related to DLD care in Ireland.

3.4 Parents

DLD is a hidden disability that commonly goes undetected by parents.[5,20,71,72] Studies (Appendix 2, Tables 7 & 10) investigated parents,[3,10,28,37,54,55,70,71,74] trainee nurses,[63] and the publics'[29,75] awareness / knowledge / understanding / perceptions / identification of speech, language and/or communication disorders. Children with more visible difficulties i.e. speech difficulties, stuttering and/or dyslexia are more likely to be identified than children with DLD alone.[71,74,76,77,97] Many parents of children with DLD appear to be unaware of their children's difficulty with oral language[(5)] with poorer awareness among parents from a lower SES.[9,38] Language difficulties are often unidentified until the school years, highlighting the importance of teachers in DLD identification[3,38] particularly in DEIS schools.

3.5 Individual with DLD

DLD impacts on an individual's experiences[9,54] and quality of life.[10] Many people with mental health needs or behaviour difficulties have a SLCN that has been missed earlier on in their lives.[9] Individuals with DLD in Ireland are often; under-identified, mislabelled, misrepresented, mismanaged, and under-served.[97] They have valuable insights and need to be recognised as key stakeholders with autonomy and involvement in decision-making about their education and health.[4,11,37]

4.0 Health promotion & DLD care

Health promotion lies at the bottom tiers of SLT and teacher models of intervention (Figures 3 & 4). SLTs role in health promotion includes; training teachers/parents to promote and identify speech, language and communication skills of children, and raising public and policy-makers awareness of the importance of language to health and wellbeing.[3,32,38] For teachers, it involves a whole school approach (WSA) to intervention; making environmental changes and differentiating the curriculum to meet the needs of every child in the classroom.

4.1 Health promotion in schools

Schools provide a dynamic setting to integrate risk factors and prevention strategies to address the social determinants of health and improve quality of life[78,79] as parents are inconsistent in identifying SLCN.[5,28,74] Identification of SLCN studies based in schools revealed that; teachers' rating of children revealed poor sensitivity and specificity for oral language[65] and was most successful with teachers trained in collaborative model of service delivery than teachers who were not.[62] One study[64] successfully educated teachers about SLCN 'red flags'[3] to increase recognition and onward referral to services. Screening/assessments showed promise in identification of language disorders[28,71] and require further investigation.[28]

Leyden *et al.*[83] explored schools' experiences of implementing Primary Talk,[84] a WSA to SLCN support in the UK. It was effective but resource intensive.[85] Importantly, evidence revealed that teachers with adequate training and schools' settings are instrumental in identification of language disorders.

4.2 Health promotion in schools in Ireland

The Health Promotion Strategic Framework[80] and Schools for Health in Ireland[41] highlighted that a multifaceted, collaborative approach is most effective in achieving health and educational outcomes.[81,82] In Ireland, health promoting schools (HPS)[41] have been instrumental in the development of; Wellbeing in Primary Schools guidelines[79] and Promotion of Healthy Lifestyles in Primary Schools circular.[86] While the introduction of the; School Inclusion Model',[42] circular 13/2017,[43] and new primary language curriculum[44] (outlined in section 3.1.1) acknowledge the benefits of a WSA, HPS has yet to be employed as a framework for the promotion of DLD/SEN in schools in Ireland.

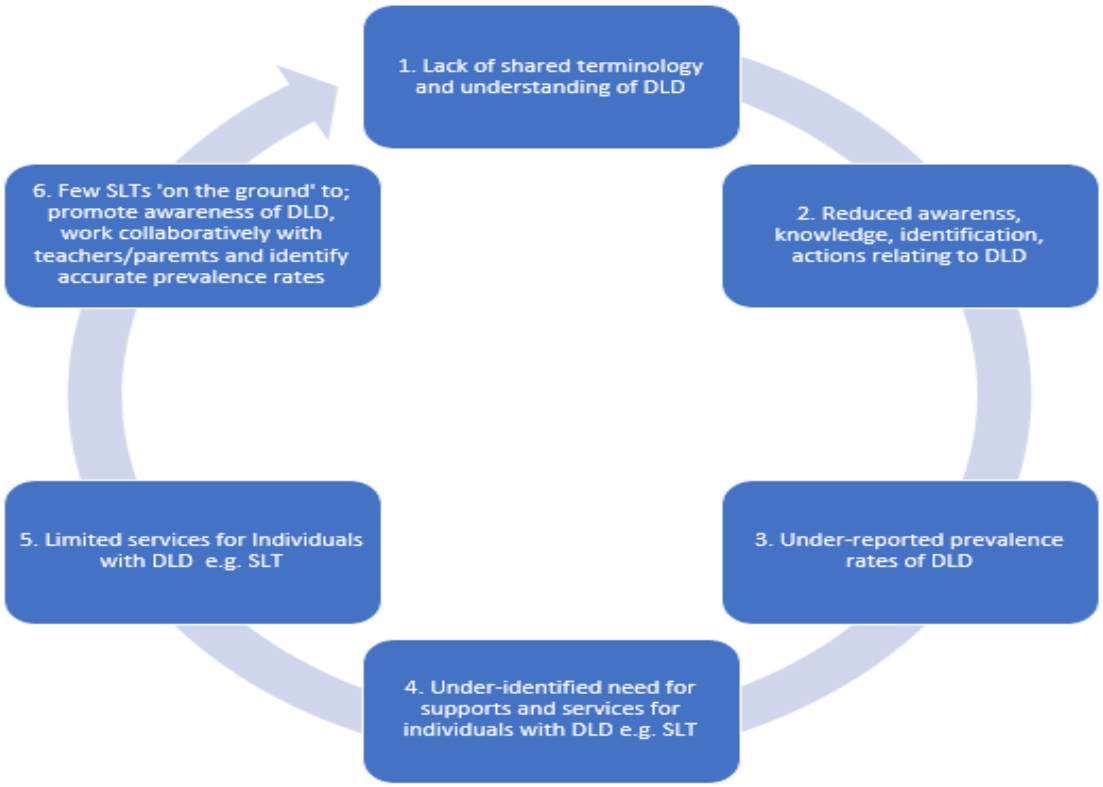
5.0 Discussion

DLD is a hidden disability, under-recognised, under-resourced and under-served in Ireland. Although it is broadly documented as an area of focus and concern within health and education policies/plans, limited action has been taken at this level to address it. The Irish education sector has a narrower definition of DLD than the health sector; understanding it as one of a group of SEN. SEN has warranted state funded research[4,14,52,54,55] (Appendix 2, Table 10 & 11) unlike DLD. Perhaps this is because the cost of SEN is known (€1.7billion) (House of Oireachtas, 2018) while the exact cost of DLD in Ireland, is not. This is unfortunate, as comparable countries (Australia) figures show the cost to the state to be like that of childhood asthma,[39] while the cost to the individual is lifelong.[3, 97]

Cross-sectoral working is a central theme across the policies/plans and professional bodies. Best clinical practice[3,38] demands a collaborative, co-ordinated approach between individuals with DLD, parents and professionals.[3,11,37,38,87] However, this is constrained by the reduced level of supports and resources available to deliver the ideals outlined in policies/plans. Funding is urgently needed for SLT staffing and training for core professionals'[37] for improvement in clinical care to be realised.

The are many inconsistencies in DLD care in Ireland from policies to practice.[3,37] The review proposes six cyclically interdependent reasons perpetuating the inconsistencies; 1. lack of shared terminology/understanding of DLD across health and education, 2. reduced public and professional awareness, knowledge and identification of DLD, 3. under-reported prevalence of DLD, 4. under-identified need at government level for increased supports/services, 5. inadequate supply of specialist services i.e. SLTs, and 6. few advocates to promote DLD awareness (Figure 5). Each of these are areas for investigation and future health promotion research.

Figure 5: Interdependent inconsistencies in DLD care in Ireland



DLD care in Ireland requires immediate attention and investment. There is a strong need to promote DLD awareness but the evidence base for how best to do so is sparse. Prevalence needs to be established to prompt government and professional level action.[3] A consistent use of terminology and means of increasing awareness,[97] knowledge, identification among teachers is required to facilitate this particularly for those most at risk from lower SES backgrounds. Adequate teacher training and schools' settings are key to the process[62,64] and require resourcing. The review revealed that a cross-sectoral, collaborative, school based, health promotion initiative may be most effective in the health promotion of DLD care in Ireland.

6.0 Conclusion

DLD is a low-recognition, high-cost public health issue, hidden in plain sight within the education sector, that the Irish government have yet to address. Due to reduced public awareness there is less funding for research, less money for services and less empathy and understanding for people with DLD.[29] Health promotion initiatives guided by literature and research in this area are warranted to realise the multiple, overlapping goals outlined in health and education government and professional body policies/papers. Investing in DLD in Ireland now, will have long-term cost-savings for the country and ensure a brighter future for those with DLD.

References

1. Bishop D, Snowling M, Greenhalagh T, et al. Phase 2 of CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *J Child Psychol. Psychiatry*. 2017;58(10):1068-1080. https://onlinelibrary.wiley.com/doi/epdf/10.1111/jcpp.12721 [Accessed 21 Feb 2020].
2. Irish Association of Speech and language Therapists (IASLT). Specific speech and language impairment in children: definition, service provision and recommendations for change. 2007. http://www.iaslt.ie/docs/position_papers/IASLT%20SSLI%20Position%20Paper%20Oct%202007.pdf
3. Irish Association of Speech and Language Therapists (IASLT). Supporting Children with Developmental Language Disorder in Ireland: IASLT Position Paper and Guidance Document. 2017. https://www.iaslt.ie/documents/public-information/Childhood%20Speech%20and%20Language/DLD%20Position%20Paper%20FINAL%2023MAY2017.pdf. Accessed 21 Feb 2020.
4. National Council for Special Education (NCSE). A Study of the Experiences of Post Primary Students with Special Educational Needs. Research Report No. 23. https://ncse.ie/wp-content/uploads/2016/07/NCSE-A-Study-of-the-Experiences-of-Post-Primary-Students-with-Special-Ed-Needs.pdf. Accessed 6 July 2020.
5. Hendricks A, Adlof A, Fox A, et al. Identifying children at risk for developmental language disorder using a brief whole-classroom screen. *J. Speech Lang. Hear. Re*. 2019;62,896-908.
6. Beitchman J, Wilson B, Johnson C, et al. Fourteen-year follow-up of speech/language-impaired and control children: Psychiatric outcome. *J. Am. Acad. Child Adolesc. Psychiatry*. 2001;40(1):75-82.
7. Schoon I, Parsons S, Rush R, et al. Children's language ability and psychosocial development: a 29-year follow-up study. J. Peds. 2010;126(1):73-80.
8. Snow P. Elizabeth Usher Memorial Lecture: Language is literacy is language. Positioning Speech Language Pathology in education policy, practice, paradigms, and polemics. *Int J Speech-Lang Pa*. 2016;18(3): 216-228.
9. Beard A. Speech, language and communication: a public health issue across the lifecourse. *Paed Child Healt-Can*. 2017;126-131.
10. Eadie P, Conway L, Hallenstein B, et al. Quality of life in children with developmental language disorder. *Int J Lang Comm Dis*. 2018;53(4):700-810.

11. Gallagher A, Galvin R, Robinson K et al. The characteristics and self-concept of 13-year-olds with and without disabilities in Ireland: A secondary analysis of the Growing Up in Ireland (GUI) study. *PLoS ONE*. 2020;15(3). Doi.org/10.1371/journal.pone.0229599.
12. Norbury C, Gooch D, Wray C, et al. The impact of nonverbal ability on prevalence and clinical presentation on language disorder: Evidence from a population study. *J Child Psychol Psychiatry*. 2016*;* 57:1247-1257.
13. Bishop D. Which neurodevelopmental disorders get researched and why? *PLOS One.* 2010;5(11): e15112.
14. NCSE. Educational Experiences and Outcomes of children with Special Educational Needs: Phase 2 -from 9 to 13, Research Report no. 25. 2018. http://ncse.ie/wp-content/uploads/2014/10/Report-17-Educational-Outcomes-Children-with-SEN-final.pdf. Accessed 6 July 2020.
15. Locke A, Ginsborg J, Peers I . Development and disadvantage: Implications for the early years and beyond. *Int J Lang Comm Dis*. 2002; 37(1):3-15. DOI: 10.1080/13682820110089911.
16. Law J, Levickis P, McKean C, et al. Child Language in Public Health Context. Policy Brief Synthesising research evidence to inform policy. 2017;2 May 2017, Melbourne: Murdoch Childrens Research Institute. https://www.mcri.edu.au/sites/default/files/media/documents/cres/crecl_policy_brief_2_dld_public_health.pdf [accessed 21 Feb 2020].
17. O' Hare A & Bremner L. Management of developmental speech and language disorders: Part 1. *Arch Dis Child*. 2017; 101:272-277.
18. Weisleder A & Marchman A. Low socioeconomic differences in early language environments shape children's language development. In Bar-On A, Ravid D. *Handbook of Communication Disorders: Theoretical, Empirical, and Applied Linguistic Perspectives.* Boston: De Gruyter Mouton (Handbook of Applied Linguistics). https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=nlebk&AN=1800859&site=eds-live&scope=site. Accessed: 20 February 2020.
19. Raouafi S, Achiche S, Raison M. Socioeconomic disparities and difficulties to access to healthcare services among Canadian children with neurodevelopmental disorders and disabilities. *J Epidemiol Commun H*. 2018; 40:1-10.

20. Dockrell J & Hurry J. The identification of speech and language problems in elementary school: Diagnosis and co-occurring needs. *Dev. Disabil. Res. Rev.* 2018; 81:52-64.
21. Chen H-J, Hsin-Ju Ko M, Li S-T, et al. Prevalence of preschool children's developmental disabilities in Northeastern Taiwan – screening with Taipei city developmental screening checklist for pre-schooler, 2nd version. *J Formos Med Assoc.* 2020:119(7);1174-1179. Doi: 10.1016/j.jfma.2020.02.001.
22. Roy P, Chiat S, Dodd B. Language and Socioeconomic Disadvantage. *From Research to Practice. London*. UK: City University London; 2014.
23. Spencer N, Thanh TM, Louise S. Low income/socio-economic Status in Early Childhood and Physical Health in Later childhood/adolescence: A Systematic Review. *Matern Child Health J.* 2013;(3):424-31. Doi: 10.1007/s10995-012-1010-2.
24. Meschi V, Vignoles A, Lindsay G. An investigation of pupils with Speech, Language and Communication Needs (SLCN). Institute of Education, University of London, CEDAR, University of Warwick. https://pdfs.semanticscholar.org/af28/42ef199fa96ea363a732bdcb93d264621b95.pdf?_ga=2.102099329.142601530.1594110908-460706214.1583666970.
25. Dockrell J, Lindsay G, Letchford B. Educational provision for children with specific speech and language difficulties: perspectives of speech and language therapy managers. *Int J Lang Comm Dis*. 2006; 41:423-440.
26. Cohen MJ, Menna R, Vallance DD et al. Language, Social Cognitive Processing, and Behavioral Characteristics of Psychiatrically Disturbed Children with Previously Identified and Unsuspected Language Impairments. *J Child Psychol Psychiatry*. 1998;39(6):853-64. https://pubmed.ncbi.nlm.nih.gov/9758194/
27. Kamhi AG. A meme's eye view of speech-language pathology. *Lang* Speech *Hear Ser.* 2004;35: 105-111.
28. Ebert K, Ochoa-Lubinofff C, Holmes MP. Screening school-age children for developmental language disorder in primary care. *Int J Speech-Lang Pa.* 2019;1-11.
29. Mostafa E & Ahmed M. Public awareness of delayed language development in Upper *Egypt*. EJO. 2018; 34:94-102.
30. Mroz M. Teaching in the foundation stage-how current systems support teachers' knowledge and understanding of children's speech and language. *Int. J.* Early Years *Educ.* 2006;14(1):45-61.

31. Government of Ireland, Department of Education and Skills. DEIS Plan 2017: Delivering Equality of Opportunity in Schools. 2017. https://www.education.ie/en/Publications/Policy-Reports/DEIS-Plan-2017.pdf Accessed 21 Feb 2020.
32. Ebbels S, McCartney E, Slonmins V, et al. Evidence-based pathways to intervention for children with language disorders. *Int J Lang Disord.* 2019;54(1):3-19.
33. Fricke S, Bowyer-Crane C, Harley AJ, et al. Efficacy of language intervention in the early years. *J Child Psychol Psychiatry*. 2013;54(3):280-290.
34. Bower- Crane C, Snowling M, Duff F, et el. Improving early language and literacy skills: Differential effects of an oral language versus a phonology with reading intervention. *J Child Psychol Psychiatry*. 2008;49(4):422-432.
35. Royal College of Speech and Language Therapists (RCSLT). An economic evaluation of speech and language therapy; factsheet. 2010. https://www.rcslt.org/-/media/Project/RCSLT/rcslt-economic-value-factsheet.pdf. Accessed 4 May 2020.
36. National Council for Special Education (NCSE). Supporting Students with Special Educational Needs in Schools: NCSE POLICY ADVICE PAPER NO. 4. Co. Meath, Ireland. 2014. Available: http://ncse.ie/wp-content/uploads/2014/09/Supporting_14_05_13_web.pdf. Accessed 21 Dec 2019.
37. Gallagher A, Murphy CA, Conway P, et al. Engaging multiple stakeholders to improve speech and language therapy services in schools: an appreciative inquiry-based study. *BMC Health Serv. Res*. 2019;19(226):1 -17.
38. RCSLT. RCSLT briefing paper on Language Disorder with a specific focus on Developmental Language Disorder. 2017. https://www.rcslt.org/-/media/Project/RCSLT/language-disorder-briefing paper.pdf?la=en&hash=3711F04A1EE6CCDFD9488FED6C076B 6FB73E89E5. Accessed 4 May 2020.
39. Cronin P. The economic impact of childhood developmental language disorder. *Open publications of UTS Scholars*. 2017. https://opus.lib.uts.edu.au/handle/10453/123261. Accessed: 21 Feb 2020.
40. World Health Organisation (WHO). Summary overview and background to Health Promotion: Globalization, health challenges and the Bangkok Charter. 6th Global Conference on Health promotion in Bangkok, Thailand. 2005;7-1.
41. Health Service Executive (HSE). Schools for Health in Ireland: Co-ordinator Handbook for Developing a Health Promoting School. Dublin. 2013.

https://www.healthpromotion.ie/hpO files/docs/HPM00840.pdf. Accessed: 6 Jan 2020.

42. Government of Ireland. Department of Education and Skills. Minister McHugh announces trial of a new School Inclusion Model to provide the right supports at the right time to students with additional needs. 2019. https://www.education.ie/en/Press-Events/Press-Releases/2019-press-releases/PR19-03-27-1.html#:~:text=Examinations%202020%20Information-,27%20March%2C%202019%20%2D%20Minister%20McHugh%20announces%20trial%20of%20a%20new,to%20students%20with%20additional%20needs&text=Key%20features%20of%20the%20School,Special%20Needs%20Assistants%20(SNAs). Accessed 7 Jul 2020.
43. Government of Ireland, Department of Education and Skills. Circular to the Management Authorities of all Mainstream Primary Schools Special Education Teaching Allocation. Circular 0013/2017. https://www.education.ie/en/Circulars-and-Forms/Active-Circulars/cl0013_2017.pdf. Accessed 7 Jul 2020.
44. Government of Ireland, Department of Education and Skills. Primary language Curriculum. Dublin. 2019. https://www.curriculumonline.ie/getmedia/2a6e5f79-6f29-4d68-b850-379510805656/PLC-Document_English.pdf. Accessed 07 Jan 2020.
45. McCartney E. SLTs and teachers working together in schools: the importance of new research in Ireland. National Council for Special Education (NCSE) Annual Research Conference Croke Park, Dublin. 2018. https://ncse.ie/wp-content/uploads/2018/11/McCartney-NCSE-2018.pdf. Accessed 7 Jul 2020.
46. Government of Ireland. Department of Health. Minister Harris announces €2 million funding for Autism Plan. 2019. https://www.gov.ie/en/press-release/4b6d68-minister-harris-announces-2-million-funding-for-autism-plan/. Accessed 7 Jul 2020.
47. The Teaching Council. Cosán Framework for Teachers' Learning. 2016. https://www.teachingcouncil.ie/en/Publications/Teacher-Education/Cosan-Framework-for-Teachers-Learning.pdf. Accessed 7 Jul 2020.
48. National Council for Special Education (NCSE). Educational Experiences and Outcomes of children with Special Educational Needs: Phase 2 -from 9 to 13, Research Report no. 25. 2018. https://ncse.ie/wp-content/uploads/2018/03/03263-NCSE-EdExps-Children-SEN-FINAL-UPLOAD.pdf. Accessed 7 Jul 2020.
49. Government of Ireland. Department of Education and Science. Special education circular 02/05. 2005.

https://www.sess.ie/sites/default/files/Documents_Publications/Circular_SP_02_05.pdf. Accessed 7 Jul 2020.

50. Government of Ireland. Department of Education and Science. An Evaluation of Special Classes for Pupils with Specific Speech and Language Disorder. A National Report of the Inspectorate of the Department of Education and Science. Dublin: Stationery Office. 2005. https://www.education.ie/en/Publications/Inspection-Reports-Publications/Evaluation-Reports-Guidelines/insp_ssld_report_pdf.pdf. Accessed 7 Jul 2020.
51. Department for Education, United Kingdom. SEN support: a survey of schools and colleges, Research Report.2017. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628629/DfE_SEN_Support_Survey_Report.pdf. Accessed 7 Jul 2020.
52. Government of Ireland. House of the Oireachtais, Joint Committee on Education and Skills. Report on Training and Supports for Providers of Special Needs Education and Education in DEIS schools. 2017. https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_education_and_skills/reports/2018/2018-10-25_report-on-training-and-supports-for-providers-of-special-needs-education-and-education-in-deis-schools_en.pdf. Accessed 5 Jul 2020.
53. NASUWT The Teachers Union. Special Educational Needs (SEN), Additional Learning Needs (ALN) and Additional Support Needs (ASN), Survey Report. 2018. https://www.nasuwt.org.uk/uploads/assets/uploaded/843fe4e0-fb73-408f-b2d69e1c48a95dfe.pdf. Accessed 7 Jul 2020.
54. National Council for Special Education (NCSE). National survey of Parental attitudes to and experiences of local and national special education services, Research Report No: 6. 2010. https://ncse.ie/wp-content/uploads/2014/10/6__NCSE_ParentalAttitude.pdf. Accessed 7 Jul 2020.
55. National Council for Special Education (NCSE). Project IRIS-Inclusive Research in Irish Schools, Research Report No: 20. 2015. https://pdst.ie/sites/default/files/NCSE-IRIS-Report-No20.pdf. Accessed 7 Jul 2020.
56. Duncan P. More than 32,000 children await speech services. Irish Times. 31st March 2014. https://www.irishtimes.com/news/health/more-than-32-000-children-await-speech-services-1.1743869. Accessed 7 Jul 2020.

57. O' Brien C. Thousands of children with disabilities waiting years for supports. Irish Times. February 7th, 2014. https://www.irishtimes.com/news/health/thousands-of-children-with-disabilities-waiting-years-for-supports-1.1682796. Accessed 7 Jul 2020.
58. Van Borsal J, Moeyaert J. Mostaert C, et al. Prevalence of stuttering in regular and special school populations in Belgium based on teacher perceptions. *Folia Phoniatr Logo.* 2006;58(4):289-302.
59. Al-Sharbati MM, Al-Farsi YM, Ouhtit A, et al. Awareness about autism among schoolteachers in Oman: A Cross-sectional study. *Autism.* 2015;19(1):6-13.
60. Lu M, Zou Y, Chen X, et al. Knowledge, attitude and professional self-efficacy of Chinese mainstream primary school teachers regarding children with autism spectrum disorder. *Res. Autism Spectr. Disord.* 2020; 72:1-12.
61. The Communication Trust. Professional development in speech, language and communication: Findings from a national survey, United Kingdom. 2017. Accessed 29 Mar 2020.
62. Ebert KA & Prelock PA. Teachers' perceptions of their students with communication disorder. *Lang* Speech *Hear Ser. 1994;* 25: 211-214.
63. Sudharshan Reddy M. A preliminary report on awareness of communication disorders among nursing trainees and primary school teachers. *Indian J Pediatr*. 2019; 19:500-508.
64. McLeod S & McKinnon DH. Prevalence of communication disorders compared with other learning needs in primary and secondary school students. *Int J Lang Comm Dis.* 2001; 42:37-59. DOI: 10.1080/13682820601173262.
65. Antoniazzi D, Snow P, & Dickinson-Swift V. Teacher identification of children at risk for language impairment in the first year of school. *Int J Speech-Lang Pa.* 2010*;* 12:244-252.
66. NASUWT The Teachers Union. The Big Question 2019, An opinion survey of teachers and headteachers. 2019. https://www.nasuwt.org.uk/uploads/assets/uploaded/981c20ce-145e-400a-805969e777762b13.pdf. Accessed 7 Jul 2020.
67. Clarke A, Sixsmith J, Barry M. Evaluating the implementation of an emotional wellbeing programme for primary school children using participatory approaches. *Health Educ. J.* 2010; 74(5) 578–593.
68. Payton J, Weissberg R, Dulark J. The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews.

Chicago, IL: Collaborative for Academic, Social, and Emotional Learning. 2008. www.casel.org.

69. World Health Organisation. Health Behaviour in School-Aged Children (HBSC) Fact Sheet. April 2012. Copenhagen. www.euro.who.int/en/what-we-do/health-topics/Life-stages/childand-adolescent-health/health-behaviour-in-school-aged-children-hbsc2.-who-collaborative-crossnational-study-of-children-aged-1115. Accessed 20 January 2020.
70. Dockrell J, Howell P, Leung D, et al. Meeting the needs of children with speech language and communication needs in England: Challenges for practice. *Front. Educ*. 2017;2(35).
71. Adlof SM, Scoggins J, Brazendale A, et al. Identifying children at risk for language impairment or dyslexia with group administered measures. *J. Speech Lang. Hear. Res.* 2017; 60:3507-3522.
72. Bandurra A. Social Learning Theory. Englewood Cliffs, NJ.: Prentice Hall; 1977.
73. Tomblin JB et al. Prevalence of specific language impairment in kindergarten children. *J. Speech Lang. Hear. Res.* 1997; 40:1245-1260.
74. American Speech-Language Hearing Association (ASHA). ASHA Parent Survey Spring 2019 Report. 2019. https://www.asha.org/uploadedFiles/ASHA-Parent-Survey-Spring-2019.pdf. Accessed 4 May 2020.
75. Sudharshan Reddy M, Shanbal JC, & Arunraj K. Awareness of communication disorders in Hospet Taluk of Karnataka: A preliminary survey report. *Indian J Pediatr*. 2016; 16:132-144.
76. Silliman ER & Bremner VP. Cross-disciplinary dialogue about the nature of oral and written language problems in the context of developmental, academic, and phenotypic profiles. 2011. *Top Lang Disord*. 2011;31(1):6-23.
77. Catts H, Fey M, Zhang X, et al. Estimating the risk of future reading difficulties in kindergarten children: A research-based model and its clinical implementation. *Lang* Speech *Hear Ser*. 2001; 32:38–50.
78. Bloch P, Toft U, Reinbach HC, et al. Revitalizing the setting approach - Supersettings for sustainable impact in community health promotion. *Int J Behav Nutr Phy*. 2018;11 (118). doi:1186/s12966-014-0118-8.
79. Government of Ireland. Department of Education and skills (DES), Health Service Executive (HSE), Department of Health (DOH). Schools for Health in Ireland:

FRAMEWORK for Developing a Health Promoting School-Primary. 2015. https://www.healthpromotion.ie/hp-files/docs/HPM00840.pdf. Accessed 7 Jul 2020.

80. HSE. The Health Promotion Strategic Framework, HSE National Health Promotion Office. https://www.healthpromotion.ie/hp-files/docs/HPSF_HSE.pdf. Accessed 6 Jan 2020.
81. Stewart-Brown S. What is the evidence on school health promotion in improving health or preventing disease and specifically what is the evidence of effectiveness of the health promoting school approach? Health Evidence Network Report, WHO Regional Office. 2006. https://www.euro.who.int/__data/assets/pdf_file/0007/74653/E88185.pdf. Accessed 7 Jul 2020.
82. Wagner GH et al. Health Promoting School – Evidence for Effectiveness. *Int. J. Heal Prom. Ed.* 2003;10(4).
83. Leyden J, Stackhouse, J, Szczerbinski M. Implementing a whole school approach to support speech, language and communication: Perceptions of key staff. *Child Lang. Teach. Therapy*. 2011; 27(2):203–222. http://www.hse.ie/eng/staff/resources/changeguide/resources/change-guide.pdf Accessed: 21 Dec 2019.
84. ICAN. Primary Talk: A whole school approach to supporting children's language. 2001. https://ican.org.uk/media/1932/6_speech_language_and_communication_needs_and_primary_school_aged_children.pdf. Accessed 7 Jul 2020.
85. Lister-Sharp D, Chapman S, Stewart-Brown S, et al. Health promoting schools and health promotion in schools: two systematic reviews. Health Technology Assessment. NHS RandD HTA Programme 1999;3(22).
86. Government of Ireland, Department of Education and Skills. Circular 0013/2016: promotion of healthy lifestyles in schools. 2016. https://circulars.gov.ie/pdf/circular/education/2016/13.pdf. Accessed 7 Jul 2020.
87. Gallagher AL, Murphy CA, Conway PF, et al. Consequential differences in perspective and practices concerning children with developmental language disorders: an integrative review. *Int J Lang Comm Dis*. 2019;54(4):529-552.
88. Blackburn CM, Spencer N, Read J. Prevalence of childhood disability and the characteristics and circumstances of disabled children in the UK: secondary analysis of the Family Resources Survey. *BMC Peds*. 2010;10(21):1-12.

https://bmcpediatr.biomedcentral.com/track/pdf/10.1186/1471-2431-10-21. Accessed 7 Jul 2020.

89. Government of Ireland, Department of Health. Slaintecare Implementation Strategy. 2017. https://assets.gov.ie/22607/31c6f981a4b847219d3d6615fc3e4163.pdf. Accessed 12 Jul 2020.
90. Government of Ireland, Department of Health. Healthy Ireland - A framework for Improved Health and Wellbeing 2013 – 2025. Dublin; DOH. 2013. https://www.hse.ie/eng/about/who/healthwellbeing/healthy-ireland/publications/hi-framework.jpg. Accessed 12 Jul 2020.
91. Government of Ireland, Department of Health (DOH). Healthy Ireland Outcomes Framework. Dublin; DOH. 2018. https://www.hse.ie/eng/about/who/healthwellbeing/healthyireland/publicationshealthy-ireland-outcomes-framework-2018.pdf. Accessed 12 Jul 2020.
92. Government of Ireland, Department of Children and Youth Affairs. Better Outcomes, Brighter Futures: The national policy framework for children and young people 2014 – 2020. Dublin. 2014. https://assets.gov.ie/23796/961bbf5d975f4c88adc01a6fc5b4a7c4.pdf. Accessed 21 Dec 2019.
93. Government of Ireland. Disability Act 2005, No. 14 of 2005. Dublin. https://www.oireachtas.ie/en/bills/bill/2004/39/. Accessed: 21 Dec 2019.
94. Government of Ireland, Department of Education and Skills. DEIS Plan 2017: Delivering Equality of Opportunity in Schools. 017. https://www.education.ie/en/Publications/Policy-Reports/DEIS-Plan-2017.pdf. Accessed 21 Feb 2020.
95. Government of Ireland. Education for Persons with Special Needs (EPSEN) Act 2004, No. 30 of 2004, Dublin. 2004. https://www.oireachtas.ie/en/bills/bill/2003/34/. Accessed 21 Dec 2019].
96. Government of Ireland. Education Act. Dublin. 1998. http://www.irishstatutebook.ie/eli/1998/act/51/enacted/en/html. Accessed 12 Jul 2020.
97. McGregor K. How we fail children with developmental language disorder. *LSHSS*. 2020;1-12. http://pubs.ashs.org 80.233.38.144. Accessed 26 Aug 2020.
98. National Council for Special Education. The continuum of support (primary). https://www.sess.ie/special-education-teacher-allocation/primary/continuum-support-primary. Accessed 09 Sep 2020.

99. Finnegan K. The deployment of Speech and Language Therapists from delivering services to Covid 19 swabbing and contact tracing is causing huge upset and concern for families in Galway who are affected. Galway Talks with Keith Finnegan – Wednesday 23rd September 2020. https://galwaybayfm.ie/podcasts/galway-talks-with-keith-finnegan-tuesday-22nd-september-2020-2/. Accessed 23 September 2020.
100. Gibbons M, Corry T, Finnerty N, Feery A, Lyons R. & Antonijevic-Elliott S. Investigating Outcomes of Two Models of Service Delivery for 8 - 13-Year-Old Children with Specific Language Disorders. 2016. Creating the Future Now, 30th World Congress of the IALP, Dublin.
101. National Council for Special Educational Needs (NCSE). NCSE List of Special Classes Mainstream Schools September 2020. https://ncse.ie/wp-content/uploads/2020/09/List-of-Special-Classes-September-2020.15.09.2020-1.pdf. Accessed 28 September 2020.
102. Government of Ireland. Department of Health. Estimating Prevalence of Autism Spectrum Disorders (ASD) in the Irish Population: A review of data sources and epidemiological studies November 2018. https://assets.gov.ie/10707/ce1ca48714424c0ba4bb4c0ae2e510b2.pdf. Accessed 28 September 2020.

Appendices

Appendix 1

1.0 Search strategy

A three-pronged search approach was used (Figure 6) to provide a wide scoping literature review. Search terms were informed by the review topics and guided by inclusion/exclusion criteria (Table 1). These combined with terms from the thesaurus of the databases were searched. Search engines for the empirical and theoretical review included; google, google scholar, Yeats library Institute of Technology (IT) Sligo, National University Ireland (NUI) Galway library, Pubmed, Science Direct and Ebesco. A broad search was completed through google to review relevant Irish government policies, Irish and United Kingdom (UK) professional guidelines and websites. Reference lists were scanned to identify other relevant articles/papers. These were then sourced through one of the three approaches.

Figure 1: Search strategy

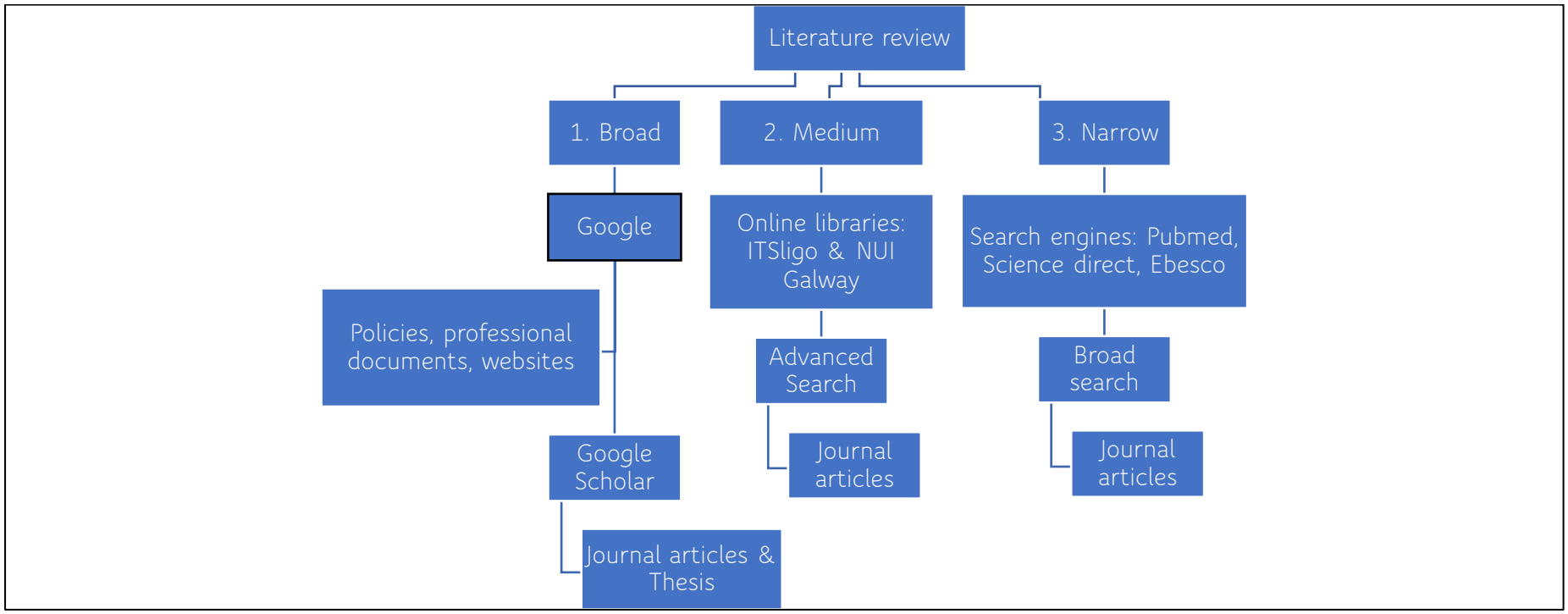


Table 1: Inclusion & exclusion criteria for literature review

Empirical & Theoretical Literature		**Policies, Professional Guidelines & Websites**	
Inclusion	**Exclusion**	**Inclusion**	**Exclusion**
Related to children.	Related to adults.	Related to Teachers and SLTs.	Related to other professions.
Related to communication disorders i.e. DLD/SSLI.	Related to disorders other than communication disorders.	Related to Speech, Language, Communication Needs (SLCN), Special Educational Needs (SEN), SSLD, DLD and DEIS.	Related to other disorders.
Related to awareness, knowledge, prevalence, SES, identification, collaborative working, teachers, schools, screening, survey, questionnaires, focus groups, public health, health promotion.	Related to service delivery models, intervention.	Relevant to Irish and UK context.	Not relevant to Irish and UK context.
Peer- reviewed journal articles, books and thesis.	Non-peer-reviewed articles.	Policies, strategies, professional guidelines and information websites.	Newspaper articles, therapeutic information websites.
Available in English	Not available in English.	Available in English	Not available in English
Published from 1990 – 2020.	Published before 1990.	Published between 2005 – 2020.	Published before 2005.

Appendix 2

Table 2: Cross-sectoral policies/plans aligned with DLD care

No	Strategies	Relevant Goals/Themes/Principles/Recommendations	Alignment
		Health	
1	Sláintecare Implementation Strategy (Department of Health (DOH), 2017)[89]	• Principles; 1. Engagement, 2. Patient as paramount, 3. Timely access, 5. Prevention and Public Health. • Goal 2; Action 4: Expand community-based care closer to home. • Goal 3; Action 7: Reform funding to support new models of care and drive value to make better use of resources.	• Engaging schools, teachers and children. • Childs needs identified as paramount. • Earlier identification potentially leads to earlier referral to SLT. • Often schools are closer to home than health centres. • Identify teacher as a valuable resource.
2	Healthy Ireland Framework (DOH, 2013)[90]	• Vision: '*A Healthy Ireland, where everyone can enjoy physical and* ***mental health and wellbeing*** *to* ***their full potential,*** *where wellbeing is* ***valued and supported*** *at every level of society and is* ***everyone's responsibility'*** DOH (2013, p5)**.** • Goal 1: Increase the proportion of people who are healthy at all stages of life. • Goal 2: Reduce health inequalities. • Goal 3: Create an environment where every individual and sector of society can play their part in achieving a healthy Ireland. • Theme 2: Partnership and cross-sectoral working. • Theme 3: empowering people and communities. • Theme 4: Health and health reform. • Theme 5: Research and evidence base. • Theme 6: Monitoring, reporting and evaluating.	• Recognise impact of DLD on wellbeing. • Support children to achieve their full potential by recognising their needs. • Health is everyone's responsibility including teachers. • DLD can be lifelong. Identify children early to help they manage it at all stages of life. • Children from lower socio-economic status (SES) are at higher risk of DLD. These children often attend a DEIS school. • Education and health working together for the benefit of the child. • Empower teachers to recognise DLD and recommend onward referral. • Increase awareness and knowledge of DLD among the public starting with teachers.

		• Principles for implementation: Better use of people and resources, better partnerships, better use of evidence.	
3	Healthy Ireland Outcomes Framework (DOH, 2018)[91]	• Health Outcomes: all wellbeing factors. • Social determinants: socio-economic factors.	• DLD can have implications for both mental health and engagement in society. • Higher incidence of DLD in lower SES groups.
4	Schools for Health in Ireland Framework (HSE, 2013)[41]	• Promoting the health and well-being of pupils • Enhancing the learning outcomes of pupils • Upholding social justice and equity • Providing a safe and supportive environment • Involving pupil participation and empowerment • Linking health and education issues and systems • Collaborating with parents/guardians and the wider community • Integrating health into the schools' ongoing activities, curriculum and assessment standards • Setting realistic goals built on accurate data and sound evidence • Seeking continuous improvement through ongoing monitoring and evaluation	• DLD is recognised as a SEN/disability that can impact on social, emotional, behavioural and academic well-being. • Children from lower SES are at higher risk of DLD and require equal opportunities to learn. • A DLD aware environment is a communication friendly environment that supports all students. • The voice of the individual and parents of the child with DLD are paramount in decision making and planning. • Language development requires regular monitoring in schools. • Interventions should be realistic and based on identified needs and strengths of the individual. • Health is integral to education. DLD is a health issue most evident in schools.
5	Better Outcomes Brighter Futures: The National Policy	• Outcomes approach: 1. Active and healthy with positive physical and mental wellbeing, 2. Achieving their full potential in all areas of learning and development, 3. Are safe and protected from harm, 4. Have economic	• Earlier identification of a potential DLD may facilitate earlier onward referral, assessment and intervention.

	framework for Children and Young people 2014-2020 (Department of Children and Youth Affairs, 2014)[92]	security and opportunity, 5. Are connected respected and contributing to their world. • Transformational goals: support parents, earlier intervention and prevention, listen to and involve children and young people, ensure quality services, strengthen transitions, cross-government and interagency collaboration and coordination.	• DLD can be lifelong and can have implications for social participation wellbeing, mental health and criminal activity. • DLD often co-occurs with dyslexia. • Increasing teachers' awareness and knowledge of DLD and confidence in onward referral to health services promotes interagency collaboration.
6	Disability Act (2005)[93]	• 'ensure that quality of life for people with disabilities is enhanced and that resources allocated reach the people who need them' Citizens Information Board (2012, p2).	• Increasing teachers' awareness and knowledge of DLD increases the chance of a child's need being identified and met.
		Education	
7	DEIS Plan (Department of Education and Skills (DES), 2017)[94]	• Delivering equality of opportunity in schools; children's wellbeing, school retention, literacy attainment, progression and teacher education. • Goal 2: To improve the learning experience and outcomes of pupils in DEIS schools. • Goal 3: To improve the capacity of school leaders and teachers to engage and deploy resources. • Goal 4: To support and foster better practice in schools through interagency collaboration. • Goal 5: To support the work of schools by providing research, information, evaluation and feedback to achieve goals.	• DLD can co-occur with literacy difficulties and can impact on academic progress. • Increasing teachers' awareness and knowledge of DLD improves the teacher capacity to engage and foster better practice through interagency collaboration. • A collaborative health promotion initiative will provide evidenced based research on DLD and provide feedback on the impact of the project.
8	National Council for Special Education (NCSE); Supporting Students with	• Recommendation 4: Ensure teachers are provided with the necessary knowledge, skills, understanding and competence to meet the diverse learning needs of students with special educational needs.	• Continual professional development (CPD) on DLD may provide teachers with knowledge of DLD and the skills for initiating referral to SLT. • Children with DLD are a health priority.

	Special Educational Needs in Schools Policy Advice Paper no. 4 (NCSE, 2014)[36]	• Recommendation 5: clarify the role and responsibilities of teachers to ensure a full understanding of the nature and extent of their responsibilities. • Recommendation 18: Children with special educational needs should be recognised as a **key health priority**. • 'Timely and appropriate identification and assessment are important factors in ensuring that appropriate intervention commences as soon as is feasible' NCSE (2014, p24).	• Earlier referral of children with DLD to SLT can have positive implications for short- and long-term outcomes.
9	Education for persons with Special Educational Needs Act 2004 (EPSEN)[95]	• 'The promotion of an inclusive approach to the education of children with special educational needs' Citizens Information Board (2012, p2).	• Children with DLD need to be identified before an inclusive approach can be taken.
10	Education Act 1998[96]	• To make provision in the interests of the common good for the education of every person in the state, including any person with a disability or who has other special educational needs (SEN). • To ensure that the education system is accountable to students, their parents and the state for the education provided. • To provide for the role and responsibilities of principals and teachers. • To establish the national council for curriculum and assessment and to make provision for it, and to provide for related matters.	• All children have a right to education. Those with DLD are more likely to have difficulty accessing the educational curriculum and have SEN. • Education system needs to account for its stakeholders and engage them in the identifying needs and service planning. • Recognition of the need for a differentiated curriculum and assessment in identifying and supporting children with SEN.

Table 3: Cross-sectoral policies/plans aligned with DLD care summary

Goals → Strategies ↓ as in Table 2	**Public Health**	**Cross sectoral working**	**Child as paramount**	**Wellbeing**	**Equity / Inclusion**	**Timely access**	**Socioeconomic factors**	**Individuals achieving their potential**	**Maximising resources**	**Support/ empower people / workforces**
Health										
1	√	√	√			√			√	
2	√	√		√	√		√	√	√	√
3		√		√	√		√			
4	√	√	√	√	√	√	√	√	√	√
5		√		√				√		
6		√			√					
Total	3/6	6/6	2/6	4/6**	4/6**	2/6	3/6	3/6	3/6	2/6
Education										
7		√		√			√	√	√	√
8	√	√	√			√				√
9		√			√	√				
10			√		√			√		√
Total	1/4	3/4***	2/4	1/4	2/4	2/4	1/4	2/4	1/4	3/4***
Overall Total	**4/10**	**9/10***	**4/10**	**5/10**	**7/10**	**4/10**	**4/10**	**5/10**	**4/10**	**5/10**

*9/10 (90%) strategies outlined across health and education identified cross-sectoral working as important.

** Wellbeing (4/6, 67%) and equity/inclusion (4/6, 67%) were the second highest goals identified in health strategies

***Supporting staff (3/4, 75%) was identified as a goal of equal value to cross sectoral working in education strategies.

Table 4: Professional body documents related to DLD care across SLT and Teaching (Ireland and UK)

No.	Professional Body	Relevant Goals/Roles/Learning areas/Recommendations	Alignment
		Speech and Language Therapy	
1	Irish Association of Speech and Language Therapists (IASLT) DLD Position paper, 2017[3]	Action plan has 21 points, 9 of which are related to topics reviewed in this paper. • 1. Improve practice in early identification and referral. • 2. Increase public awareness of DLD. • 3. Promote and support the development of communication friendly environments. • 4. Ensure children with suspected language learning difficulties access an appropriate care pathway. • 6. Ensure consistent use of criteria and terminology in the identification of needs and the description of children to others. • 14. Develop and ensure best models of collaborative practice with parents and educators. • 15. Develop closer links between SLT and educators to enhance identification of and provision of service to children with DLD in schools. • 16. Provide appropriate training and support for the assessment and identification of children with language disorder in the school setting • 20. Develop and implement research to support service planning and evidence-based practice and policy in Ireland for children with DLD.	• Need to identify current levels of awareness, knowledge and actions (identification, referral, making environmental changes) in relation to DLD among teachers. • Collaboratively working with teachers and children with DLD to develop a means of potentially increasing awareness, knowledge and confidence in actions surrounding DLD within a school-based setting should be explored. • Promote use of the term DLD. • Provide information on identification of DLD and referral process to primary care SLT. • Learnings from the review may inform health promotion actions, service delivery and policy development.

2	Royal College of Speech & Language Therapists (RCSLT) briefing paper on Language Disorder with a specific focus on Developmental Language Disorder, 2017[37]	Service delivery and commissioning for individuals with DLD. • This includes the role of SLTs in supporting skills development, environmental changes and packages of targeted intervention for the wider workforce to deliver a whole population approach. • SLTs should continue to work in partnership with other professionals, ensuring that the children and families' perspectives are central to decision-making and goal setting. • It is important that service users and stakeholders/partnership organisations are on board with and aware of new terminology in order to promote collaborative working.	• Promotes collaborative working with professionals and families. • Highlights need to increase awareness and use of the term DLD.
Teaching			

	Cósan, Teaching Council, Ireland (TCI), 2016[47]	A continual professional development (CPD) framework currently in the planning stage of development. Identifies six learning areas for teacher which are outlined below as relevant to the review. • Leading learning; subject knowledge, pedagogical knowledge, assessment etc. • Inclusion; improving capacity to address and respond to the diversity of students' needs; enable participation in learning, cultures and communities; and, remove barriers within and to education through the accommodation and provision of appropriate structures and arrangements to enable each student to achieve the maximum benefit from his/her attendance at school. • Well-being; improving capacity to foster an environment that promote dynamic, optimal development and flourishing, for all. It can incorporate cultural, academic, social, emotional, physical or technological dimensions, with a focus on resilience. • ICT; a tool for learning and teaching. • Literacy and numeracy; literacy is "the capacity to read, understand and critically appreciate various forms of communication, including *spoken language*, printed text, broadcast media, and digital media. • Supporting teachers' learning; teachers supporting each other's learning through student placements, engaging in research, contributing at meetings, giving workshops etc.	• Identifies the need for continually increasing subject knowledge (e.g. special education needs), teaching strategies and assessment. • Recognises need for inclusion. Those with DLD may require accommodations and provision of appropriate structures. • DLD impacts on well-being. • Webinars are an ICT learning tool. • Literacy is often a language-based form of communication. Those with DLD often have impaired literacy skills. • Engaging in research is identified as a way of engaging in CPD.

4	Teaching Regulation Agency (TRA), Department of Education, United Kingdom (UK).	• Maintains database of qualified teachers. • Records results of mandatory induction. • Manages complaints and misconduct.	• Recognises need for mandatory induction (training).
5	NASUWT The Teachers' Union, Special educational needs and guidance for teachers, UK, 2019[(66)]	Three of the four sections outlined in this document are related to this research. These are briefly summarised below: • Identifying and meeting the needs of pupils with SEN; assessments, taking the child's view on board, engaging with parent's, collaborative working with other professionals etc. • Roles and responsibilities (of education staff); inclusion, meeting the child' needs, engaging parents, equality among pupils, access to education/supports/facilities, using resources, high quality teaching etc. • Training, CPD and support; time and resources should be provided, suitable teaching approaches and interventions explored, opportunities to gain knowledge and understanding of SEN etc.	• Outlines the importance of identifying a child's SEN e.g. DLD, engaging with the child and family and other professionals e.g. SLT. • A child's needs need to be identified before they can be met and to allow for reduction of barriers to inclusion. • Highlights importance of training and increasing knowledge and understanding of SEN.

Table 5: Professional body documents related to DLD care summary

Goals → Professional bodies ↓ as in Table 4	**Public Health**	**Cross sectoral working**	**Child as paramount**	**Wellbeing**	**Equity / Inclusion**	**Timely access**	**SES factors**	**Individuals achieving their potential**	**Maximising resources**	**Support / empower people / workforces**
SLT										
1	√	√	√	√	√	√	√	√	√	√
2	√	√	√	√	√	√	√	√	√	√
Total*	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
Teaching										
3**				√	√		√	√	√	√
4										√
5****		√	√		√	√		√	√	√
Total	0/3	1/3	1/3	1/3	2/3	1/3	1/3	2/3	2/3	3/3
Overall Total	2/5	3/5	3/5	3/5	4/5	2/4	3/5	4/5	4/5	5/5***

*Both SLT professional bodies identified all goals as important within their specific guidelines around DLD.

**The Irish professional body (TCI, 2016) outlined more specific guidelines in relation to student/child related goals than its UK counterpart (TRA).

***All five professional bodies/reviewed identified supporting/empowering workforce as a core role/goal.

****NASUWT in the UK performs a CPD role more closely aligned to Cósan (CI, 2016) in Ireland than the TRA.

Table 6: DLD care summary: Plans/policies and professional bodies

Goals → **Strategies ↓ as in Table 2 & 5**	**Public Health**	**Cross sectoral working**	**child as paramount**	**Wellbeing**	**Equity / Inclusion**	**Timely access**	**SES factors**	**Individuals achieving their potential**	**Maximising resources**	**Support/ empower people / workforces**
Health & SLT										
1	√	√	√			√			√	
2	√	√		√	√		√	√	√	√
3		√		√	√		√			
4		√		√				√		
5		√			√					
(1)	√	√	√	√	√	√	√	√	√	√
(2)	√	√	√	√	√	√	√	√	√	√
Total	4/7	7/7*	3/7	5/7	6/7	3/7	4/7	4/7	4/7	3/7
Education & Teaching										
6		√		√			√	√	√	√
7	√	√	√			√				√
8		√			√	√				
9			√		√			√		√
(3)				√	√		√	√	√	√
(4)										√
(5)		√	√		√	√		√	√	√
Total	1/7	4/7	3/7	2/7	4/7	3/7	2/7	4/7	3/7	6/7**
Overall Total	**4/14**	**11/14*** **	**6/14**	**7/14**	**10/14**	**6/14**	**6/14**	**8/14**	**7/14**	**9/14**

*Cross sectoral working was the most common theme across health and SLT.

**Supporting/empowering people/workforces was the most common theme across education and teaching.

*** Cross sectoral working was the most common theme across health and SLT and education and teaching.

Table 7: SLT research literature

No.	Reference	Journal Impact factor (IF)	Title	Methodology	Summary/relevant findings
1	Adlof, Scoggins, Brazendale, Babb & Petscher, 2017[71]	1.906 (2017)	Identifying children at risk for language impairment or dyslexia with group-administered measures.	Children completed screening assessment tasks (word reading, oral language and nonverbal intelligence) and parents completed questionnaires.	Group-administered screens can identify children at risk of language impairment and/or dyslexia.
2	Al-Sharbati, Al-Farsi, Ouhtit, Waly, Al-Shafaee, Al-Farsi, Al-Khaduri, Al-Said & Al-Adawi, 2015[59]	3.898 (2018)	Awareness about autism among schoolteachers in Oman: A cross-sectional study.	Questionnaire was designed and administered to teachers.	The knowledge about children with autism with ASD is poor among teachers in Oman.
3	Antoniazzi, Snow & Dickinson-Swift, 2010[65]	0.80 (2018 / 2019)	Teacher identification of children at risk for language impairment in the first year of school.	Teachers completed the Children's communication checklist 2nd edition on children in their first year in school. Ratings were compared to results of the Clinical Evaluation of Language Fundamentals 4th edition.	Teacher ratings showed poor sensitivity and specificity in identifying children whose oral language skills require further investigation.
4	American Speech-Language Hearing Association (ASHA), 2019[74]	N/A	ASHA Parent Survey, Spring 2019 Report.	Online survey for parents of children aged between 0 -8 years.	Parents can correctly identify some but not all signs of communication disorders. 21% correctly identified all 4 signs of speech disorder, 8% correctly identified all 5 signs of language disorder and 13% correctly identified all 7 signs or hearing disorder.

5	Beard, 2017[9]	1.572 (2016)	Speech, language and communication: a public health issue across the life course.	Discusses the evidence of the impact of speech, language and communication on life course outcomes.	Boosting SLC capacity is a public health issue to address so that more children and families in areas of social disadvantage have the life chances currently enjoyed by others.
6	Blackburn, Spencer & Read, 2010[88]	1.50 (2018 / 2019)	Prevalence of childhood disability and the characteristics and circumstances of disabled children in the UK: secondary analysis of the Family Resources survey.	Secondary analysis of the Family Resources survey; a national UK, cross-sectional (2004/5) on 16, 012 children aged 0-18years. To establish prevalence of childhood disability in relation to social and household circumstances.	7.3% of children in UK were classified as having a disability. These children experience higher levels of poverty and personal and social disadvantage than other children.
7	Catts, Fey, Zhang & Tomblin, 2001[77]	0.887 (2017)	Estimating the risk of future reading difficulties in kindergarten children: A research-based model and its clinical implementation	604 children given a battery of language, reading and non-verbal tests in kindergarten with follow-up in second grade.	Five kindergarten variables i.e. letter identification, sentence imitation, phonological awareness, rapid naming and mother's education) predicted reading outcome in second grade.
8	Danahy-Ebert, Lubinoff & Holmes, 2019[28]	0.80 (2018 / 2019)	Screening school-age children for developmental language disorder in primary care.	Screening tool consisting of sentence repetition task for children and parent questionnaire.	The screening tool is promising for utilisation in primary care clinical settings but needs to be validated in larger more diverse samples.
9	Dockrell & Hurry, 2018[20]	1.630 (2016)	The identification of speech and language problems in elementary school: Diagnosis and co-occurring needs.	Data used from UK Millennium Cohort Study to examine teacher identification of speech, language needs at 7 (n=8658) and 11 (n=7275).	High co-occurrence of SLN and other special educational needs at 7 and 11 year. Significant portion of parents of children who scored in the bottom 2nd centile on vocabulary measures did not report their child as experiencing a language problem.
10	Eadie, Conway, Hallenstein, Mensah,	1.504 (2018)	Quality of life (QoL) in children with	Analyses included 872 children who participated in the Early Language in Victoria Study	Children with DLD had a lower QoL than their peers and QoL was not related to severity of DLD. Co-occurring social-

	McKean & Reilly, 2018[10]		developmental language disorder.	(EYVS). Compared QoL profiles for children with and without DLD, and those with mild, moderate and severe DLD using parent reported pediatric quality of life inventory (PedsQoL).	emotional problems appear to play an important role in contributing to the lower QoL.
11	Ebert & Prelock, 1994[62]	0.887 (2017)	Teachers' perceptions of their students with communication disorders.	16 teachers, half who had training in collaborative model of service delivery and half who did not, ranked 28 children with communication disorders.	Teachers who were trained in collaborative model of service delivery were more accurate in their perceptions of ability level of students with communication disorders than teachers who were not trained.
12	Gallagher, Murphy, Conway & Perry, 2019[87]	1.504 (2018)	Consequential differences in perspective and practices concerning children with developmental language disorders: an integrative review.	Integrated review of the literature for evidence of a shared understanding between SLT and education about children with DLD.	Differences between the fields dominated. Lack of a shared understanding about DLD between across SLT and education.
13	Gallagher, Murphy, Conway & Perry, 2019[37]	2.706 (2018)	Engaging multiple stakeholders to improve speech and language therapy services in schools: an appreciative inquiry-based study.	Qualitive study using focus groups with SLTs, teachers and parents as well as semi-structured interviews with children with DLD on the co-design of the ideal SLT service and support in school.	Differences in stakeholders' perspectives demonstrated the importance of engaging a diverse group of stakeholders in service development including giving children influence in decisions about supports they receive in school.
14	Gallagher, Galvin, Robinson, Murphy, Conway & Perry, 2020[11]	2.776 (2018)	The characteristics, life circumstances and self-concept of 13-year-olds with and without disabilities in Ireland: A secondary analysis of Growing Up in Ireland (GUI) study.	A cross-sectional, population-based study from data collected from GUI study on 13year old children in Ireland. Prevalence of disabilities in relation to gender, socio-economic status and school factors. Investigated the association	Those with a disability are likely to live in a poorer household, experience more bullying, have a poorer health status and have a more negative view of school than typically developing peers. Parental reports that the needs of children with SLCN are disproportionately under-

				between self-concept and disability type.	identified compared to other disability groups. Evidence of inequities in access to school support require that further investigation. A need to identify accurate prevalence figures about childhood disabilities in Ireland was highlighted.
15	Hendricks, Adolf, Alonzo, Fox & Hogan, 2019[5]	2.706 (2018)	Identifying children at risk for developmental language disorder using a brief whole-classroom screen.	First and second-grade students (n=97) completed assessments on language, nonverbal intelligence, and word reading. Parents completed a questionnaire.	Many parents of children with DLD appear to be unaware of their children's difficulty with oral language. Whole-classroom screens for language show potential for efficient identification of children who may benefit from further DLD assessments without relying on parents or teachers to raise concerns.
16	Leyden, Stackhouse & Szczerbinski, 2011([83]	0.553 (2010)	Implementing a whole school approach to support speech, language and communication: Perceptions of key staff	Teachers and Head teachers were interviewed on perceived challenges and benefits of a whole school approach to SLC support: Parent Talk (I CAN, 2007).	The programme was worthwhile to implement. It enhanced the use of visual support strategies and adult–child directed speech. The respondents also identified several challenges while implementing the programme relating to time constraints and maintaining the WSA as high profile in the context of competing demands in their schools.
17	Lu, Zou, Chen, Chen, He & Pang, 2020[60]	2.907 (2012)	Knowledge, attitude and professional self-efficacy of Chinese mainstream primary school teachers regarding children with autism spectrum disorder.	410 mainstream primary school teachers were assessed using Autism Stigma and Knowledge questionnaire, Autism Attitudes Scale for Teachers and a professional self-efficacy scale.	Knowledge and attitude are important indicators of professional self-efficacy. Improving teachers' knowledge of and attitude to ASD can improve professional self-efficacy.

18	McLeod & McKinnon, 2007[64]	1.504 92018)	Prevalence of communication disorders compared with other learning need in 14,500 primary and secondary school students.	Children with learning needs were identified via a four-phased data collection process. Identification included teacher training, teacher referral, confirmation by relevant health professionals, and verification by the school district learning needs advisor.	Communication disorder (13.04%) had the second highest prevalence following specific learning disability (17.93%). There was a significant difference between learning need and socio-economic status quantile for all areas except achiever and physical/medical disability.
19	Mostafa & Ahmed, 2019[29]	0.124 (2018)	Public awareness of delayed language development in Upper Egypt.	Cross-sectional survey (questionnaire) of the publics (male and female) awareness' of delayed language development in Egypt.	Limited awareness in Egypt of the value of early language learning. Awareness of delayed language development needs to be raised in Egypt, especially among teachers.
20	Mroz, 2006[30]	0.74 (2018/ 2019)	Teaching in the foundation stage-how current systems support teachers' knowledge and understanding of children's speech and language.	Survey (questionnaire) on knowledge, skills and understandings of children's speech and language development sent to all registered early years settings (excluding childminders) in six regional authorities in the North-East of England	Foundation stage teachers have concerns about the levels of training they have in speech and language and their ability to identify children who may have communication difficulties.
21	O' Hare & Bremner, 2016[17]	3.258 (2017)	Management of development speech and language disorders: part 1.	Summary of recent literature on management of speech and language disorders.	7% of children enter school with primary speech and language impairment (DLD).
22	Silliman & Berninger, 2011[76]	1.45 (2018/ 2019)	Cross-disciplinary dialogue about the nature of oral and written language problems in the context of developmental, academic and phenotypic profiles.	Clinical case study discussion that considers the context of assessment data.	Evidence-based definitions, diagnoses and treatments linked with consensus, to a cross-disciplinary conceptual framework with well-defined and diagnosed language problems in the context of developmental and learning profiles are required.

23	Spencer, Thanh & Louise, 2013[23]	9.04 (2019)	Low Income/Socio-Economic Status in Early Childhood and Physical Health in Later Childhood/Adolescence: A Systematic Review	A systematic search of electronic databases from their start date to November 2011 was conducted to identify prospective longitudinal studies in industrialized countries with a measure of low income/SES in the first 5 years of life and physical health outcomes in later childhood or adolescence.	The literature points to some associations of early low income/SES with later poor health status.
24	Sudharshan, Shanbal & Arunraj, 2016[75]	Awaiting	Awareness of communication disorders in Hospet Taluk of Karnataka: A preliminary survey report	Experimental survey research, 145 volunteers (public) in Hospet Taluk Karnataka aged between 19-67 years.	A high awareness of communication disorders in the general public of Hospet taluk of Bellary district.
25	Sudharshan, 2019[63]	Awaiting	A preliminary report on awareness of communication disorders among nursing trainees and primary school teachers.	200 participants from Selangor state, Malyasia, 50% nursing trainees and 50% primary school teachers were given a questionnaire on various communication disorders.	Nursing trainees had better awareness of communication disorders than primary school teachers in Selangor state, Malaysia.
26	The Communication Trust, 2017[61]	N/A	Professional development in speech, language and communication: Findings from a national survey.	An English national survey into speech, language and communication support for the children and young people's workforce. Over 1200 responses with all regions of England covered, as well as every educational phase. Respondents were both qualified and unqualified.	Only a third of respondents feel very confident supporting speech, language and communication development. Only 4% felt they had sufficient training. Respondents favoured face to face training over online.

27	Tomblin, Records, Buckwalter, Zhang, Smith & O'Brien, 1997[73]	1.907 (2017)	Prevalence of specific language impairment in kindergarten children.	7,218 children screened. Those who failed, completed a diagnostic battery along with a similar number of controls.	Prevalence estimate for boys was 8% and for girls 6%. SLI (DLD) is more prevalent in girls than previously thought.
28	Van Borsal, Moeyaert, Mostaert, Rosseel, Van Loo & Van Renterghem, 2006[58]	0.36 (2018/ 2019)	Prevalence of stuttering in regular and special school populations in Belgium based on teacher perceptions.	Questionnaires distributed among teachers, data were collected on 21,027 pupils from regular schools (age between 6 and 20 years) and 1,272 pupils attending special education (age between 6 and 15 years).	Prevalence of stuttering in the regular school population was 0.58%. It was 2.28% in the special school population. In agreement with past studies, stuttering prevalence was higher in males than in females, and higher in pupils attending special schools than in pupils from regular schools.
29	McGregor [97]	1.726 (5 year)	How we fail children with developmental language disorder.	Literature review using bibliometric analysis procedures.	Percentage of children deemed eligible for services because of DLD falls well short of estimates based on prevalence. Amount of research on DLD relative to other disorders is ow due to; lack of awareness, the hidden nature of DLD, entrenched policies and pressures to diagnose in school settings. Advocacy and awareness campaigns are warranted.

Table 8: Summary of SLT literature review

No	Reference	Who	What	How	Where
1	Adlof, Scoggins, Brazendale, Babb & Petscher, 2017[71]	Children & parents	Identification of language impairment & dyslexia	Assessments & questionnaire	United States of America (USA)
2	Al-Sharbati, Al-Farsi, Ouhtit, Waly, Al-Shafaee, Al-Farsi, Al-Khaduri, Al-Said & Al-Adawi, 2015[59]	Teachers	Awareness of Autism	Questionnaire	Oman
3	Antoniazzi, Snow & Dickinson-Swift, 2010[65]	Teachers	Identification of language impairment	Children's communication checklist & screening	Australia
4	American Speech-Language Hearing Association (ASHA), 2019[74]	Parents	Identification of communication difficulties	Online survey	USA
5	Beard, 2017[9]	N/A	Impact of speech, language, communication disorders	Literature review	United Kingdom (UK)
6	Blackburn, Spencer & Read, 2010[88]	Children	Prevalence of childhood disability and social and personal disadvantage.	Secondary analysis of survey data	UK
7	Catts, Fey, Zhang & Tomblin, 2001[77]	Children	Identification of risk of reading difficulties	Assessments	USA
8	Danahy-Ebert, Lubinoff & Holmes, 2019[28]	Children & parents	Identification of DLD	Assessments & questionnaire	USA

9	Dockrell & Hurry, 2018[20]	Teachers & parents	Identification of speech and language difficulties	Assessments and survey	UK
10	Eadie, Conway, Hallenstein, Mensah, McKean & Reilly, 2018[10]	Parents & children	Quality of Life (QoL) for children with DLD	QoL Scale	Australia
11	Ebert & Prelock, 1994[62]	Teachers	Identification of communication disorders	Ranking system	USA
12	Gallagher, Murphy, Conway & Perry, 2019[87]	Education & SLT	Perspectives & practice DLD	Integrated literature review	Ireland
13	Gallagher, Murphy, Conway & Perry, 2019[37]	Teachers, parents, SLTs, Children with DLD	Perspectives of DLD services	Focus groups & interviews	Ireland
14	Gallagher, Galvin, Robinson, Murphy, Conway & Perry, 2020[11]	13-year-olds with and without a disability	Prevalence of disabilities; characteristics, life circumstances and self-concept.	Cross-sectional, secondary analysis of data collected from GUI survey.	Ireland
15	Hendricks, Adolf, Alonzo, Fox & Hogan, 2019[5]	Children & parents	Identification of language impairment	Screening assessment Parent questionnaire	USA
16	Leyden, Stackhouse & Szczerbinski, 2011[83]	Teachers & head Teachers	Perceptions of SLC whole school health promotion initiative	Interviews	UK
17	Lu, Zou, Chen, Chen, He & Pang, 2020[60]	Teachers	Knowledge, attitude & professional efficacy of Autism	Autism attitude scale, self-efficacy scale	China

18	McLeod & McKinnon, 2007[64]	Teachers	Prevalence & identification of communication disorders	Teacher training & teacher referrals	Australia
19	Mostafa & Ahmed, 2019[29]	Public	Awareness of delayed language development	Questionnaire	Eqypt
20	Mroz, 2006[29]	Teachers	Knowledge & understanding of children's speech & language	Questionnaire	UK
21	O' Hare & Bremner, 2016[17]	N/A	Management of Speech & language disorders	Literature review	UK
22	Silliman & Berninger, 2011[76]	N/A	Nature of oral and written language problems	Case study	USA
23	Spencer, Thanh & Louise, 2013[23]	N/A	Prevalence: SES and health	Literature review	USA
24	Sudharshan, Shanbal & Arunraj, 2016[75]	Public	Awareness of communication disorders	Questionnaire	India
25	Sudharshan, 2019[63]	Nursing Trainees & primary school teachers	Awareness of communication disorders	Questionnaire	Malyasia
26	The Communication Trust, 2017[61]	Education sector; Teachers	Supporting speech, language and communication	Questionnaire	UK
27	Tomblin, Records, Buckwalter, Zhang, Smith & O'Brien, 1997[73]	Children	Prevalence of speech language impairment	Screened/assessed	USA
28	Van Borsal, Moeyaert, Mostaert, Rosseel, Van Loo & Van Renterghem, 2006[58]	Teachers	Perceptions and prevalence of stuttering	Questionnaire	Belgium
29	McGregor[97]	N/A	Awareness	Literature review	USA

Table 9: No. of SLT research articles by who, what, how, where (Total=29)

Who	
Parents	1
Children	4
Teachers	9
Public	2
Mixed e.g. parents & teachers, teachers & nurses, children and parents, education & SLT	8
What	
Prevalence	5
Identification	8
Awareness	5
Knowledge	2
Perceptions/attitudes of/on communication, speech, language disorders (including Autism)	5
DLD specific	4
How	
Survey / questionnaires	12
Assessments / screeners / rating scales	9
Focus group & interviews	2
Literature review	4
Case study	1
Other: teacher training & referrals	1
Where	
USA	10
UK	7
Australia	3
Ireland	3
China	1
India	1
Belgium	1
Malaysia	1
Egypt	1
Oman	1

Table 10: Education literature review findings

No.	Reference	Title	Methodology	Summary/relevant findings
1	Department for Education, UK, 2017[51]	SEN support: a survey of schools and colleges, Research Report.	An online survey sent to primary schools, secondary schools, and colleges throughout England. 1566 settings were contacted, and 219 members of staff completed the survey The survey was open to all teaching staff to gather views and experiences about; identification of students with SEN, the support put in place for students with different needs, the issues and barriers to supporting students on SEN support, how teaching assistants are deployed, and what sources of information are used to develop understanding of how to support students with SEN.	A third (33.8%) of staff in a range of job roles across settings said they did not have responsibility for identifying students with SEN. Special Educational needs Coordinating Officers (SENCOs) received referrals regarding students potentially having SEN from; parents, teachers and professionals. They used a variety of assessment methods; standardised tests and referred to documentation recorded throughout the school year. The most common action to support students with language and communication difficulties was to make a referral to a Speech and Language Therapist. Staff also referred modifying the language they used to make it easier for students to process and understand; use of visual aids and assistive technology. Resourcing issues could act as a barrier, as there could be difficulty accessing outside professionals.
2	House of the Oireachtais, Joint Committee on Education and Skills, 2018[52]	Report on Training and Supports for Providers of Special Needs Education and Education in DEIS schools.	Written submissions from various stakeholders, identified by the committee and a public meeting of the joint committee on Education and skills. Participants included; Director of Education and Research, Irish National Teachers' Organisation, Lecturers in Marino Institute of Education, School principals, General secretary, National Association of Boards of Management in Special Education, CEO of NCSE, Director of Special Education Support Service, NCSE, Emeritus Professor of Education University College, Cork.	€1.7 billon or just over 17% of total DES budget is spent on supporting special education. Many teachers continue to report that they do not feel fully equipped to teach children with more complex special educational needs. Teaching council and DES should ensure that teachers are provided with the necessary knowledge, skills, understanding and competence to meet the diverse learning needs of students with SENs. Inconsistent availability of clinical therapeutic supports including speech and language therapy is a major concern.

3	Meschi, Vingoles & Lindsay, 2010[24]	An investigation of pupils with Speech, Language and Communication Needs (SLCN)	Analysis of administrative education data collected by the Department for Children, Schools and Families (DCSF) on all pupils in state schools (primary and secondary) in England from; National Pupil Database (NPD) and Pupil Level School Census (known as PLASC). Study investigated the relationship between pupil and school characteristics and having SLCN, as well as the academic progress of SLCN pupils.	The incidence of SLCN shows a marked overall decrease with age. At the age of 7 3% of the cohort had speech, language and communication need. By the age of 16 this has fallen to just 0.63% of the cohort. 1,500 pupils are identified as having SLCN only when they make the transition to secondary school, suggesting late identification. Risk factors for SLCN are being male, socio-economically disadvantaged, having English as an additional language and being from certain ethnic minority groups.
4	NASUWT The Teachers Union, 2018[53]	Special Educational Needs (SEN), Additional Learning Needs (ALN) and Additional Support Needs (ASN), Survey Report.	The survey was conducted over a seven-week period in September and October 2017. A total of 1,615 teachers and school leaders completed the survey. Most respondents (1,150) were from England, 232 were from Northern Ireland, 117 from Wales and 116 from Scotland. The survey sought evidence about teachers' and school leaders' experiences of; SEN/ALN/ASN including policies and practices.	Increasingly difficult to access specialist support. 'Inclusion' is open to interpretation, meaning that there is often lack of clarity around thresholds for support. More than two thirds of teachers reported that they never, rarely or only sometimes receive the support they need to teach learners with SEN/ALN/ASN effectively. Teachers are not always equipped with the knowledge, skills and expertise to meet the needs of learners with SEN/ALN/ASN. Increasing pressures and workloads, including those arising from other education reforms, have consequences for teacher morale, teacher wellbeing and teacher retention.
5	NASUWT The Teachers Union, 2019[66]	The Big Question 2019, An opinion survey of teachers and headteachers.	Ninth annual survey of teachers and headteachers, carried out in February and March 2019. Over 5,500 teachers in England responded to the survey on views of teachers and school leaders on a range of subjects including; pay, pupil behaviour, empowerment and professionalism, work/life balance, and mental and physical wellbeing.	Over four fifths (82%) of teachers said that they think there is a widespread behaviour problem in schools today and over half (56%) of teachers stated that they believe there is a behaviour problem in their schools. Teacher assessment systems, and the processes associated with recording pupil data, are now a massive workload burden.

6	National Council for Special Education (NCSE), 2010[54]	National survey of Parental attitudes to and experiences of local and national special education services, Research Report No: 6.	Following completion of the qualitative scoping exercise (focus groups and interviews with parents of children with SEN, teachers and Special Education officers (SENOs) and the data and policy review, a questionnaire for the parent survey was developed and agreed in consultation with the National Council for Special Education. 1,394 valid completed questionnaires were returned via postal method within the timeframe, giving an overall response rate of 18 per cent.	Almost half of parents (47%) stated that their child had more than one SEN, which is also likely to impact on their experiences. Most respondents confirmed that their child had been assessed formally (94%), usually by educational psychologists or by multi-disciplinary teams. The mean age of assessment was six years. Certain concerns were raised in open-ended questions which also emerged in interviews with teachers and SENOs in relation to: • waiting lists and the time taken for assessment • difficulties in identifying less common or less evident SEN, and • the feeling amongst some parents that they carried the burden of co-ordinating the various health and education agencies. Some parents raised concerns regarding the interface between health and education services, particularly shortages of speech and language therapists. Recommendations; The need for further training and guidance for school principals, teachers and other school personnel on SEN, which would be delivered in a flexible and accessible manner that considers existing workloads and budgetary constraints. Improve the links between statutory and voluntary organisations in the provision of special educational services with a view to identifying models of good practice. • Review the supply of specialist practitioners such as Speech and Language Therapists across Ireland.
7	NCSE, 2015[55]	Project IRIS-Inclusive Research in Irish Schools,	Mixed methods: literature reviews, focus groups, semi-structured interviews, survey, case studies, pupil sampling completed between 2009 – 2014 across	Between 2009-2010, 3314 children in primary school got resource hours under the category of Specific Speech and language Disorder (SSLD). This

		Research Report No: 20.	primary and secondary schools in Ireland. Focus groups included; principals, teachers, HSE professionals e.g. SLTs, Special needs assistants (SNAs), SENOs, NEPS, Disability Federation of Ireland. Survey participants includes; school staff directly involved in SEN. Case studies from 10 different primary schools, 10 secondary schools and 4 special schools. Interviews conducted for case studies included; professionals, parents and pupils. Pupil sampling occurs within the 24 case study schools using purposive sampling.	was the second highest category of SEN after Emotional/behavioural disturbance. Survey results revealed that 63% of primary school teachers had not undertaken training in special education. Focus groups highlighted benefits resulting from current training provision including raising awareness of SEN, enhancing knowledge and changing attitudes. Health Service executive (HSE) professionals have provided additional training in some special schools and this has increased staff confidence. Barriers to outcomes included; limited access to therapeutic services and insufficient teacher knowledge and expertise. Recommendations included; collaboration between education and health services to guarantee accessibility to health services, all families have access to appropriate and timely assessment procedures and as a matter of urgency all members of school SEN teams should be enabled to access appropriate training.
8	NCSE, 2016[4]	A study of experiences of post primary students with special educational needs, Research Report No. 23.	223 students were interviewed in their educational settings individually, in pairs or as part of focus groups. The views of students with special educational needs were explored to understand their experiences of post-primary education. Thirty post-primary settings participated from across Ireland.	Outlined models of support within primary schools in Ireland. Incidence of SEN is higher in areas of low socio-economic status and for families with lowest incomes. Inclusion promoted as being a good thing by adults was not a view necessarily shared by students. The key issue was a need for a co-ordinated approach that would allow students with a disability to make the most of the opportunities available. Autonomy and involvement in decision making was valued by students with and without disability. Students outlined their views on positive and negative teacher qualities. Teachers who are sensitive to the students learning needs, show they care

				and modify their explanations until the student understands were some of the positive teacher qualities outlined by students.
9	NCSE, 2018[14]	Educational Experiences and Outcomes of children with Special Educational Needs: Phase 2 -from 9 to 13, Research Report no. 25.	A secondary analysis of data from the Growing Up in Ireland Study (survey) which was conducted between 2007-2008 and 2011-2012. This longitudinal study compared children with special educational needs aged at 9 years and again at 13 years. It focused on; prevalence and stability of SEN, home and educational background, transition, engagement, attendance and subjects studied, happiness & wellbeing and achievement and expected attainment at both ages.	Specific learning difficulties or speech and language difficulties (SSLD) had the highest prevalence rate within SEN category groups accounting for 8.0% of all 13-year-olds in the study. Just over half of children with multiple or unclassified SEN at 9 were in the SSLD group at 13 years suggesting later diagnosis of children with SSLD. Learning support and resource teaching were the most common forms of support received by children with SEN. Out of school supports were received by about one in six children with SEN. The parents of children with SEN had lower educational attainment than parents of children without SEN. About 30.7% of children with SEN were in families reporting financial stress. About twice as many children with SEN than without SEN were enrolled in DEIS schools. Attendance rates at age 13 were significantly lower among children with SEN than without SEN. Attendance was influenced by socio-economic characteristics also. Children with SEN had mean scores on verbal reasoning and numeric ability tests that were significantly lower than that of children without SEN. Children with SEN had significantly lower levels of well-being than children with no SEN. The wellbeing of children with SEN is a matter for concern. Initiatives are required to specifically target the needs of vulnerable children and young people. Children with SEN at 13 reported lower educational expectations than children without SEN

Table 11: Summary of Education literature review

No	Reference	Who	What	How	Where
1	Department for Education, UK, 2017[51]	Primary schools, secondary schools and colleges teaching staff.	*Identification* of students with SEN.	Online Survey	England
2	House of the Oireachtais, Joint Committee on Education and Skills, 2018[52]	Management level personnel related to teacher education, special needs education and DEIS schools.	*Training and supports* for providers of special needs education and education in DEIS schools.	Written submissions and public meeting.	Ireland
3	Meschi, Vingoles & Lindsay, 2010[24]	Schools and pupils with SLCNs.	*Prevalence*; Relationship between pupil and school characteristics and having SLCN, as well as the academic progress of SLCN pupils.	Secondary data analysis from a survey and census.	England
4	NASUWT The Teachers Union, 2018[53]	Teachers and school leaders.	*Training & Support*; Experiences of SEN/ALN/ASN including policies and practices	Survey	UK
5	NASUWT The Teachers Union, 2019[66]	Teachers	*Experiences;* Pay, pupil behaviour, empowerment and professionalism, work/life balance, and mental and physical wellbeing.	Survey	UK
6	National Council for Special Education (NCSE), 2010[54]	Parents of children with SEN, teachers and Special Education officers (SENOs).	Parental attitudes to and *experiences* of local and national special education services.	Mixed methods including; Focus groups, interviews, policy reviews, parent questionnaires.	Ireland
7	NCSE, 2015[55]	Principals, parents, pupils, teachers, school staff involved with SEN, HSE professionals e.g. SLTs,	*Experiences* and outcomes for pupils with SEN in Irish schools.	Mixed methods: literature reviews, focus groups, semi-structured interviews, survey,	Ireland

		Special needs assistants (SNAs), SENOs, NEPS, Disability Federation of Ireland.		case studies, pupil sampling completed between 2009 – 2014 across primary and secondary schools in Ireland.	
8	NCSE, 2016[4]	Post primary students with special educational needs, Ireland.	*Experiences* of post-primary education.	Interviews	Ireland
9	NCSE, 2018[14]	Children with Special Educational Needs at 9 and 13 years.	*Prevalence* and stability of SEN, home and educational background, transition, engagement, attendance and subjects studied, happiness & wellbeing and achievement and expected attainment at both ages.	Secondary analysis of data from the Growing Up in Ireland Study (survey), a longitudinal study.	Ireland

Table 12: No. of Education research articles by who, what, how, where (Total =9)

Who	Number
Teachers/school staff	3
Children/pupils with/without SENs	3
Mixed	2
Management / organization level	1
What	
Identification	1
Prevalence	2
Teacher training and support	2
Experiences of pupils / parents / teachers	4
How	
Survey	3
Secondary data analysis	2
Interviews	1
Mixed methods	2
Written submissions & public meeting	1
Where	
Ireland	5
England / UK	4

Table 13: No. of SLT and Education research papers by who, what, how, where

Who	Number	%
Teachers/school staff*	12	36%
Children/pupils with/without SENs	7	21%
Parents	1	3%
Public	2	6%
Mixed e.g. combination of healthcare professionals, education staff, parents, children etc.*	10	31%
Management / organization level	1	3%
Total number of research papers addressing specific populations	**33**	**100%**
What		
Prevalence*	12	31%
Identification	4	11%
Awareness of communication, speech, language disorders (including Autism)	5	13%
Knowledge of communication, speech, language disorders (including Autism)	2	5%
Perceptions/attitudes of/on communication, speech, language disorders (including Autism)	5	13%
DLD Specific	4	11%
Teacher training and support	2	5%
Experiences of pupils / parents / teachers	4	11%
Total number of research papers	**38**	**100%**
How		
Survey*	15	39%
Secondary data analysis	2	5%
Assessments / screeners / rating scales	9	24%
Interviews	2	5%
Mixed methods	2	5%
Literature review	4	10%
Case study	1	4%
Written submissions & public meeting	1	4%
Other: teacher training & referrals	1	4%
Total number of research papers	**38**	**100%**

Where		
Ireland	8	21%
England / UK*	11	30%
USA	10	26%
Australia	3	7%
China	1	4%
India	1	4%
Belgium	1	4%
Malaysia	1	4%
Egypt	1	4%
Oman	1	4%
Total number of research papers	**38**	**100%**

***Indicates highest incidence within the category**

- 36% of all research papers focused on teachers solely and 31% looked at a mix of participants including; professional (teachers, education staff, nurses, SLTs), parents and children.
- 31% of all research papers focused on prevalence of SEN/SLCN/SSLD/DLD. Identification and awareness of speech and language disorders each accounted for 11% of papers with knowledge of speech and language disorders accounting for 5%. There is a recognition in the literature that prevalence needs to be established but an increase in awareness, knowledge and identification is first required to establish accurate prevalence numbers.
- 39% of research papers used surveys (questionnaires) as the research method and 5% used a mixed methods approach.
- 21% of research papers were based in Ireland with 30% based in UK and 26% based in USA. This was influenced by the inclusion/exclusion search criteria.