Review

Consequential differences in perspectives and practices concerning children with developmental language disorders: an integrative review

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Abstract

Background: Inter-professional collaboration (IPC) has been recommended for many years as a means by which the needs of children with developmental language disorders (DLD) can be met at school. However, effective IPC remains difficult to achieve and our knowledge of how to support it is limited. A shared understanding between those involved has been identified as critical to IPC.

Aims: To examine the literature, as one source of data, for evidence of a shared understanding between the fields of speech and language therapy (SLT) and education about children with DLD and how such needs can best be met at school.

Methods & Procedures: An integrative review of the literature was undertaken. A systematic search of the published, peer-reviewed literature (between 2006 and 2016) was conducted for empirical and theoretical papers and a manual search was undertaken to obtain a representative sample of policy/professional guidelines. A total of 81 papers across SLT and education were included in the review. The papers were scrutinized using a qualitative content analysis.

Main Contribution: Although some commonality between perspectives in the literature was identified, differences between the fields dominated. These differences related to how DLD is conceptualized; how children's needs are assessed; which outcomes are prioritized and how best these outcomes can be achieved. We also found differences about what constitutes useful knowledge to guide practice. We suggest that the nature of the differences we identified in the literature may have negative implications for practitioners wishing to collaborate to meet the needs of children with DLD in school. The perspectives of practising SLTs and teachers need to be sought to determine whether the findings from the literature reflect dilemmas in practice.

Conclusions: Effective IPC is essential to meet the needs of children with DLD in school; yet, it remains difficult to achieve. Our review of the literature across SLT and education indicates evidence of a lack of shared understanding about DLD. If these differences are also evident in practice, then a conceptual model to support IPC may be warranted.

Keywords: inter-professional collaboration, integrative review, developmental language disorder, special educational needs, qualitative content analysis.

What this paper adds

What is already known on the subject

IPC is recommended as a means by which the needs of children with DLD in school can be met, but in practice it is difficult to achieve. A shared understanding has been identified as being important if professionals are to collaborate effectively. Our knowledge of the extent to which such an understanding exists between SLT and education is limited.

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What this paper adds to existing knowledge
This is the first study to compare and contrast the literature across SLT and education in order to examine the extent to which a shared understanding exists about children with DLD. Its findings highlight differences in perspectives that may have implications for practitioners when collaborating.

What are the potential or actual clinical implications of this work?
Understanding perspectives in the literature as well as those of pertinent stakeholders can inform methods of supporting IPC when supporting children with DLD in school.

Introduction

At least 7% of the school-aged population has a persistent difficulty learning language in the absence of a known cause (Lindsay and Strand 2016, McLeod and McKinnon 2007, Tomblin *et al.* 1997). Until recently, this population were referred to as having a 'specific language impairment', but as a result of a recent consensus process, they are now referred to as having a 'developmental language disorder' (DLD).[1] Such a difficulty can have a negative impact on a child's social, emotional and educational outcomes (Conti-Ramsden *et al.* 2009, Lindsay and Dockrell 2012). Both speech and language therapists (SLTs) and teachers are professionally bound to ensure that children with DLD can achieve and participate fully in school.

For many years, inter-professional collaboration (IPC) has been recommended in policy as a means by which the needs of children with additional needs can be met in school (United Nations Education Scientific and Cultural Organization (UNESCO) 1994, World Health Organization (WHO) 2011). It is recognized as essential to the role of the SLT working in schools (American Speech and Hearing Association (ASHA) 2001, Royal College of Speech and Language Therapists (RCSLT) 2018, Speech Pathology Australia (SPA) 2011) and has been the subject of ongoing discussion in the SLT literature (Law *et al.* 2002, McCartney 1999, 2000, 2002). While restructuring of SLT services in some countries has allowed SLTs to work more directly in schools, changes at this macro-level have not necessarily resulted in effective collaboration (Brandel 2011, Glover *et al.* 2015). Our knowledge of how to facilitate IPC in practice remains limited.

In this paper, we report the findings of an integrative review (IR) of the literature across SLT and education, in which we examined the evidence for a shared understanding about children with DLD, identified as a critical facilitator of effective IPC. We also explore the implications of the findings for practice.

IPC occurs when 'two or more individuals from different professional backgrounds with complementary skills interact to create something that none had previously possessed or could have come to on their own' (WHO 2001: 36). The desired outcome of IPC is 'collaborative advantage', or the possibility of creating something new collectively than that which is achieved when each professional works alone (Vangen and Huxham 2013, WHO 2001).

Effective IPC is considered particularly important in meeting the needs of children with DLD in school because of the role of language in learning. Most activities undertaken in the classroom require an ability to follow instructions and to formulate sentences, but many children with DLD have difficulty with both (Dockrell and Lindsay 1998). Further, such difficulties are pervasive, that is, they negatively impact on the development of other skills. The child with DLD is more likely to struggle to learn to read and spell (Lindsay and Strand 2016, Snowling and Hulme 2006), have difficulty in developing mathematical skills (Cowan *et al.* 2005, Donlan *et al.* 2007, Durkin *et al.* 2013) and in developing social competence (McCabe and Meller 2004).

By working effectively together to plan and deliver supports, SLTs and teachers have the potential to address barriers to learning in school and ultimately to improve language, literacy and educational outcomes for children with DLD (Archibald 2017, Starling *et al.* 2012, Throneburg *et al.* 2000).

However, IPC is a complex phenomenon and collaborative advantage is difficult to achieve (Zwarenstein and Reeves 2000). To date, researchers have focused mainly on identifying the essential determinants of effective IPC. These include factors related both to the organization and to the individual. In a review of the special education literature, Hernandez (2013) described organizational factors, such as the extent to which IPC is formalized within school policy and procedures, supportive leadership and the allocation of additional protected time, as essential. Similar factors have been identified in the SLT literature (Mc Cartney 2002, 2009, McKean *et al.* 2017).

At the level of the individual practitioner, positive self-efficacy (a belief that you can change your own practice) and openness and a willingness to take risks have been identified as important (Huxham and Vangen 2001, McKean *et al.* 2017). Strong communication and negotiation skills are also seen as essential (McKean *et al.* 2017, Reeves *et al.* 2007, Suter *et al.*

2009). Conversely, power imbalances between those involved have a negative influence on IPC (Chung *et al.* 2012, Fox and Reeves 2015).

According to Hudson (2007), however, even when many of the above factors are present, effective IPC is still not guaranteed and a more likely result is 'collaborative inertia'. He and others have proposed that if we are to develop effective ways of facilitating IPC, we need to develop our understanding of the process at the micro-level, that is, at the level of interaction between the individuals (D'Amour *et al.* 2008, Hudson 2007, Huxham and Vangen 2001, Johnson *et al.* 2003, Xyrichis and Lowton 2008).

Many researchers of IPC discuss the importance of those involved being able to manage their differences in order to negotiate shared goals (Akkerman *et al.* 2007, D'Amour *et al.* 2005, Daley 2008, Doyle 2008, Ranade and Hudson 2003). Specific to SLTs and teachers, it has been suggested that a lack of shared language and understanding exists about DLD, which may act as a barrier to IPC (Baxter *et al.* 2009, Bishop 2014, Dockrell *et al.* 2017, Dunsmuir *et al.* 2006, McCartney 1999). While much work has been done in the last 5 years to address the language/terminological issues related to children with DLD (Bishop *et al.* 2016, 2017), to our knowledge perspectives about DLD in the literature across SLT and education have never been fully explored.

Aims, assumptions and methodological choices

We examined the literature, as one source of data, to ascertain the extent to which a shared understanding exists between SLT and education about DLD and/or how these children's needs can be met. A greater understanding of areas of commonality and difference would allow some preliminary hypotheses about the ways in which IPC between SLTs and teachers may need to be supported.

Underpinning this study are key assumptions about 'pathway(s) of influence' between academic knowledge and practice (Barley *et al.* 1988). We acknowledge that academics and practitioners operate within two separate but interdependent social systems, but take the position that these are not reciprocal. Rather, in this study we posit that the dominant pathway/direction of influence is from research (empirical knowledge developed by scholars) to practice. Thus, a practitioner may be potentially influenced symbolically or conceptually, as well as in their practice, by such knowledge (Barley *et al.* 1988).

We chose to conduct an IR to answer our research questions for two reasons. First, this method is particularly suited to answering complex practice-based research questions as comprehensively as possible as it allows for the inclusion of disparate sources of literature

(Souza *et al.* 2010). Second, the method makes explicit the need for different search strategies (systematic and/or purposive), inclusion criteria and quality appraisal tools, depending on the sources included in the review, thereby enhancing transparency and credibility (Cooper 1982).

We chose to conduct a qualitative content analysis of the included papers. This method is used when interpreting meaning from text. It therefore allowed us to gain an insight into the perspectives within each field of enquiry and to establish whether or not a shared understanding existed.

According to Hsei and Shannon (2005), there are three different types of qualitative content analysis: conventional, directed and summative. For this study we conducted a conventional analysis that involves coding the texts inductively (i.e., without applying a framework or theory). Such an approach is commonly used when little is known about the topic of interest.

We followed the Enhancing Transparency of Reporting Synthesis of Qualitative research (ENTREQ) guidelines in reporting this study (Tong *et al.* 2012). The use of such guidelines ensures researchers include the necessary information for readers to understood and appraise the quality of a study fully.

Methods

Ethical approval was granted a priori for this study by the Faculty of Education and Health Sciences' Human Research Ethics Committee, at the University of Limerick, Ireland. The study protocol was registered in PROSPERO, an international prospective database of systematic reviews (reg. no. CRD42016048575).

Search strategy (empirical/theoretical papers)

To retrieve empirical and theoretical literature, we conducted a systematic electronic search. We engaged additional support from an information specialist to generate the search terms. These were informed by previous papers in the field of SLT and education and were combined with medical subject headings or terms from the thesaurus of the databases to be searched. Owing to the previously noted terminological issues affecting the population of interest, this was a lengthy process, and several iterations of these searches were run to ensure all pertinent papers were retrieved.

As recommended in the ENTREQ guidelines, we include a full record of one of the database searches in table A1 in appendix A.

Different search frames were used for each literature source. For empirical sources, a population–intervention–(comparison)–outcomes (PICO) framework was used (Richardson *et al.* 1995), whereas for

the theoretical literature a population—situation framework (P-I) was applied (DiCenso *et al.* 2014).

The following electronic databases were searched: Medline, PubMed, Scopus, The Allied Complementary Medicine Database, CINAHL Plus, Embase, Cochrane Library, Speech-BITE, Education Resource Information Centre, Education Full Text, Psych Articles, Psych Info, British Education Index, as well as www.googlescholar.com and www.lenus.ie. All searches were limited to peer-reviewed papers published in English between 2006 and 2016.

Once the searches were complete, the first author and a second reviewer screened the abstract and title of each paper independently. Decisions achieved 95% agreement. Where opinions differed, a discussion took place between the reviewers to establish consensus. A third reviewer was available (the second author) to arbitrate if consensus could not be reached.

Study eligibility criteria (empirical and theoretical)

To be included in this review, empirical studies had to meet all of the following criteria:

- Described children with a diagnosis of a DLD only.[2]
- Related to children of primary school age (5–12 years).[3]
- Be practice orientated.[4]
- Published between 2006 and 2016.[5]
- Available in English.
- Peer-reviewed articles.

We excluded empirical papers that were not solely focused on children with DLD such as those who discussed children with speech and language needs associated with a known cause or biological condition. We also excluded papers not available in English; and any non-peer reviewed papers.

To be included in this review, theoretical studies had to meet all of the following criteria:

- Theories/models/concepts related to meeting the needs of children with additional needs/DLD in school were presented and discussed.
- Published between 2006 and 2016.
- Available in English.
- Peer-reviewed articles

Search strategy (policy/professional guidelines)

It was beyond the scope of this review to include policies/professional guidelines from all countries. Instead, we included a representative sample. We developed a sampling frame based on a published international policy review of special education needs (SEN) (Rix *et al.* 2013). In their study, Rix *et al.* (2013) categorized SEN provision as having one of three possibilities: single tracked (full or near mainstream education only), multi-tracked (two systems which complement each other) and two track (separate mainstream and special needs schools). We have included educational policies and corresponding disability policies from two countries within each of these three categories: Canada and Finland (single tracked); Ireland and Scotland (multi-tracked); and Belgium and Singapore (two tracked). We also included these countries' professional (SLT and teachers) guidelines where available. We did not set specific exclusionary criteria for disability policy documents as we were aware that such policies are not usually age or condition specific.

Quality appraisal (empirical and theoretical)

Full texts of the studies that met the above inclusion criteria were retrieved. Two reviewers (the first author and a third reviewer) then independently completed a quality review process. The mixed methods appraisal tool (MMAT) was applied to assess the methodological quality of empirical papers (Pace *et al.* 2012). This validated tool enables the quality of quantitative, qualitative and mixed-methods studies to be appraised, each against its own quality criteria. Studies that met fewer than two out of four criteria in the relevant section of this tool were excluded.

For theoretical papers, a quality appraisal checklist was developed, adapted from a theory analysis tool by Walker and Avant (2005). The checklist included the following: the origins and meaning of the theory; reporting quality; quality of evidence in support of argument; logical consistency and potential of contribution. To be included, theoretical papers had to achieve a minimum of one point for each of these sections.

Analysis

All papers were read by the first author. During a second reading, the following details of each paper were recorded: date of publication, title, author(s), stated purpose/aims of the paper, which field of practice was discussed and a summary of the topic.

A total of 59 of the 64 (92%) empirical and theoretical papers included for analysis could be classified as SLT or education papers based on explicit reference to SLT or teacher/teaching assistant practice.

The first author then sought further information about the remaining five papers. This included details of the first author, such as institute/department/school/faculty; professional background from a website

profile; and previous publications. Using these criteria, four of the remaining papers were classified by the first, third and fourth authors. The final paper was classified based on tracked citations, as both authors were developmental psychologists and there was ambiguity about whether they were referring to the practice of SLTs or teachers.

Policy/professional guidelines included were also classified as either 'health' or 'education'. SLT guidelines written by SLT associations were categorized as health papers, as were disability policies published by government health departments. Policies and guidelines issued by education departments/professional associations in education were classified as education. A list of included papers is provided in the next section.

We followed a process of double-coding as described by Toye *et al.* (2014). Line-by-line coding of one randomly selected paper from the field of enquiry of SLT and one from education was undertaken by the first author. The same papers were then independently coded by a third researcher, who had experience of undertaking qualitative research but was neither a teacher nor an SLT. Coding decisions were then discussed between the two coders until agreement was reached. Two more papers were then selected and coded in the same way. When eight papers had been double-coded, there was good concordance between coders, so the first author continued to code the remaining papers.

The final open codes were transferred to an NVivo database to enhance the transparency and traceability of the analysis and to enable efficient mapping of concepts and clear visualizing of the data. The next stage involved grouping open codes into 'higher order' codes using visual maps of the data, enabling relationships between the categories and codes to be further explored and refined. At each level of analysis, codes and categories were also presented by the first author to the second to fourth authors, with the supporting data, for further discussion before finalizing.

Results

Search results

Results of the search strategy for theoretical and empirical papers are presented in figure 1 using a PRISMA flow diagram (Liberati *et al.* 2009).

Our initial search yielded 7978 papers. There was a 95% inter-reviewer agreement on selection of papers by title and abstract. Discrepancies were resolved through discussion and no decisions were referred to the third reviewer. For details of the initial search results, full text retrieval and reasons for exclusion, see figure 1. Retrieved policy documents/professional guidelines

($n = 17$) are included in the flow chart as 'additional records identified'.

For a description of the 81 papers included in the study, see tables 1 and 2. Owing to the number of papers included in the review, for readability we have referenced these by number in the text.

Results of the analysis

The results of our analysis are presented in two sections. The first shows the differences in perspectives we identified in the SLT literature and the education literature about DLD and how the needs of children with DLD can be met. These differences were supported by a large number of codes from multiple papers in the sample.

In the second section, we present the overlaps in perspectives that we identified between the fields of enquiry. These were supported by a limited number of codes across a small number of papers.

Differences in perspectives about DLD

In figure 2, the views that dominated the SLT literature are presented on the left and those from education on the right. These related to (1) the nature of DLD,[6] (2) assessing DLD, (3) desired outcomes (for children with DLD); (4) achieving outcomes and (5) the nature of intervention.

The nature of DLD

In the majority of SLT papers, DLD is described as a deficit in language learning within the child. This is reflected in the terminology used when describing a child's needs, namely 'specific language *impairment*' (table 1: 2, 3, 5, 12, 14, 16, 21, 25, 27, 28, 32, 41, 50, 51, 54; table 2: 69), a 'speech and language *deficit*' and a 'speech–language *disorder*' (table 1: 8, 35, 38, 61, 62; table 2: 65). In these papers, a categorical view (that there are biological boundaries between the child with DLD and those who have other developmental diagnoses and/or typically developing skills) is implicit. Children are therefore categorized based on whether or not they have a diagnosis of DLD (table 1: 3, 8, 9, 15, 21, 22, 28, 35).

By contrast, in the education literature analyzed, such difficulties are referred to more broadly as a 'learning disability' (table 1: 4, 7, 11, 13, 18, 20, 31; table 2: 74) or a 'special educational need' (table 1: 52; table 2: 71, 75). DLD is classified along with other unexplained problems such as difficulties in developing literacy or numeracy skills. This application of terminology suggests a different focus: one that identifies the environment in which a child functions (e.g., the classroom) and
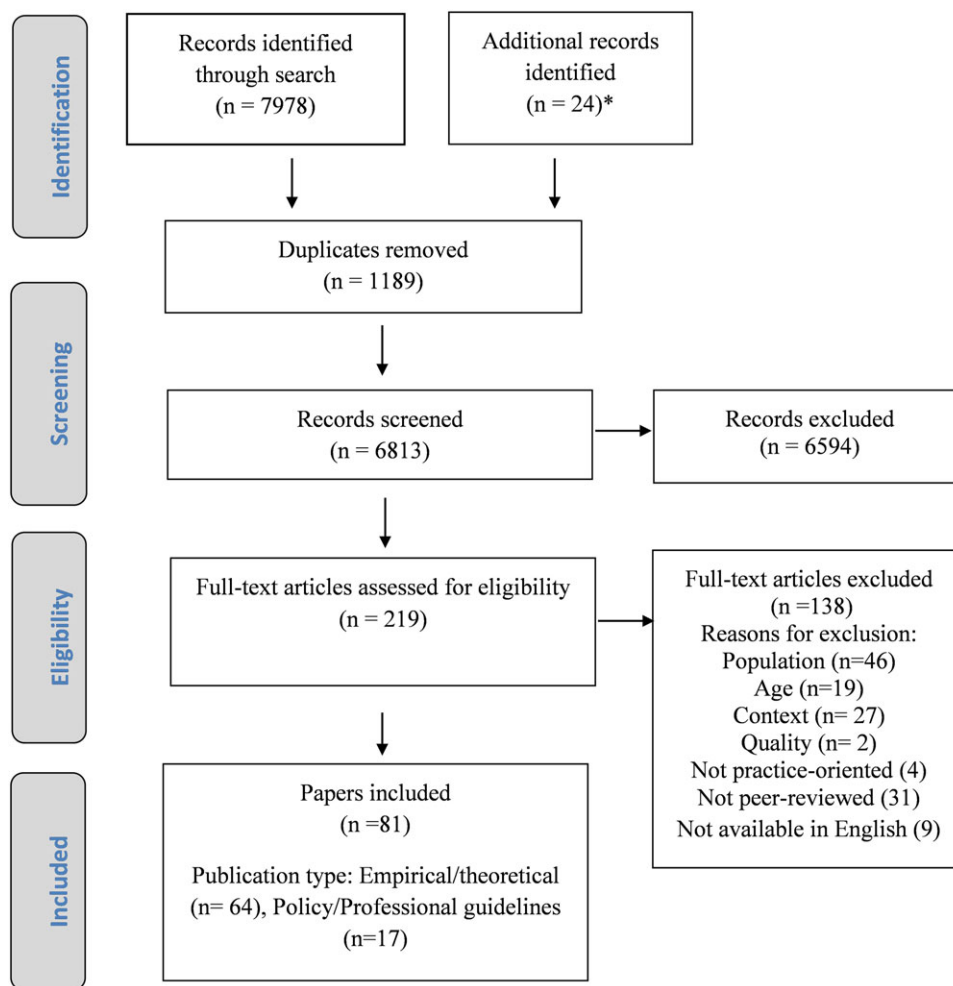
Figure 1.   Flowchart of the review process and results of the literature search. [Colour figure can be viewed at wileyonlinelibrary.com]

how this may influence a child's ability to learn. Indeed, the most frequent topics in the education literature related to ways in which adjustments can be made to the classroom setting, instruction and/or curriculum to support better the learning of children with DLD (table 1: 4, 10, 11, 18–20, 52, 62; table 2: 69, 73).

In the education literature analyzed, the negative implications of categorizing or labelling the child solely based on their deficit(s) are explicitly discussed. Specifically, the concept of 'deterministic thinking' is referred to in several papers (table 1: 19, 20, 34, 46) where low teacher expectations, based on such approaches, have limited a child's opportunities to progress.

In this literature children are understood to vary in their ability to master different skills and their abilities are on a continuum (table 1: 18, 20, 24, 31; table 2: 72, 76). The needs of children will overlap in various combinations in the classroom and it is these areas of overlap or commonality that are key when deciding how best to support a child's learning (table 1: 10, 11, 19; table 2: 71).

In the SLT literature analyzed, language is described in its component parts, separate from the context in which it naturally occurs, using standardized measures. Such components include grammar (table 1: 3, 17, 35, 47, 51, 59), morphology (table 1: 62), narrative skills (table 1: 37, 44, 60), vocabulary (table 1: 64), comprehension (understanding of language) (table 1: 3, 28, 48) and expression (use of language) (table 1: 8). Assessment provides a detailed profile of the specific areas of language which are impaired in the child and these findings are used to guide intervention (table 2: 65).

Assessing DLD

In the education literature, assessing a child in order to develop an individual profile of their deficit(s) is not considered to be useful for making decisions about intervention. In this literature, assessment and instruction are discussed, not as separate activities/tasks, but as part

Table 1. Summary of empirical and theoretical papers included in the study

No.	Reference	Title	Field of enquiry	Summary/purpose of the paper
1	Bishop (2014)	Ten questions about terminology for children with unexplained language problems	SLT	Discusses diagnostic criteria and terminological issues related to DLD
2	Bishop and McDonald (2009)	Identifying language impairment in children: combining language test scores with parental report	SLT	Aims to establish the sensitivity of psychometric testing
3	Bishop *et al.* (2006)	Resistance of grammatical impairment to computerized comprehension training in children with specific and non-specific language impairments	SLT	Aims to establish the efficacy of computerized intervention for improving language comprehension
4	Black-Hawkins (2010)	The framework for participation: a research tool for exploring the relationship between achievement and inclusion in schools	Education	Presents a framework for facilitating the participation of children with additional needs in school
5	Botting *et al.* (2015)	The importance of natural change in planning school-based intervention for children with developmental language impairment (DLI)	SLT	Explores natural change and response to intervention in school-aged children with DLD
6	Bowyer-Crane *et al.* (2008)	Improving early language and literacy skills: differential effects of an oral language versus a phonology with reading intervention	Education	Compares the efficacy of two approaches on literacy and language skills
7	Climie and Henley (2016)	A renewed focus on strengths-based assessment (SBA) in schools	Education	Provides an overview of SBA and suggests ways of supporting the implementation of such an approach
8	Cirrin and Gillam (2008)	Language intervention practices for school-age children with spoken language disorders: a systematic review	SLT	Appraises the evidence of the efficacy of interventions for children with spoken language disorders
9	Cirrin *et al.* (2010)	Evidence-based systematic review: effects of different service delivery models on communication outcomes for elementary school-age children	SLT	Examines evidence in support of the effectiveness of SLT service models to schools
10	Danforth and Naraian (2015)	This new field of inclusive education: beginning a dialogue on conceptual foundations	Education	Describes the conceptual differences between inclusive and special education
11	Dean *et al.* (2006)	Comparison of ecological validity of learning disabilities diagnostic models	Education	Discusses child-centred diagnostic model versus relative achievement discrepancy and response to intervention models
12	Dethorne and Watkins (2006)	Language abilities and nonverbal IQ in children with language impairment: inconsistency across measures	SLT	Examines the extent to which language abilities are associated with non-verbal IQ in children with language impairments
13	Dockrell *et al.* (2006)	Educational provision for children with specific speech and language difficulties: perspectives of speech and language therapy service managers	SLT	Documents the views of service managers views of factors related to service delivery for children with DLD
14	Dollaghan (2011)	Taxometric analyses of specific language impairment in 6-year-old children	SLT	Explores whether language impairments present as a distinct category
15	Ebert and Kohnert (2009)	Non-linguistic cognitive treatment for primary language impairment	SLT	Explores the efficacy of treatment targeting auditory memory and speed of visual processing on language outcomes
16	Feeney *et al.* (2012b)	Health-related quality-of-life of children with speech and language difficulties: a review of the literature	SLT	Appraises the evidence for poor quality of life scores in children with DLD
17	Finestack and Fey (2009)	Evaluation of a deductive procedure to teach grammatical inflections to children with language impairment	SLT	Compares outcomes of an inductive versus deductive instructional approach to grammar
18	Fletcher and Vaughn (2009)	Response to intervention: preventing and remediating academic difficulties	Education	Challenges of the scaling up of 'response to intervention' models in and across schools

Table 1. Continued

No.	Reference	Title	Field of enquiry	Summary/purpose of the paper
19	Florian and Black-Hawkins (2011)	Exploring inclusive pedagogy	Education	Describes inclusive practices in schools in the UK in meeting the needs of children with SEN
20	Fuchs *et al.* (2010)	The 'Blurring' of special education in a new continuum of general education placements and services	Education	Critiques US education policy (IDEA versus NCLB) and discusses implications for practice
21	Gillam *et al.* (2008)	The efficacy of Fast ForWord (FFW) language intervention in school-age children with language impairment: a randomized controlled trial	SLT	Compares language and auditory processing outcomes for children with DLD following FFW language intervention
22	Gillam *et al.* (2012)	Language outcomes of contextualized and decontextualized language intervention: results of an early efficacy study	SLT	Compares outcomes from two different language interventions and a control group
23	Gomersall *et al.* (2015)	Measuring quality of life in children with speech and language difficulties: a systematic review of existing approaches	SLT	Reviews the literature regarding the use of Quality of Life tools in research for children with DLD
24	Grigorenko (2009)	Dynamic assessment and response to intervention two sides of one coin	Education	Discusses RTI and DA to improve conceptual clarity. Similarities and differences in the concepts are explored
25	Hasson and Botting (2010)	Dynamic assessment of children with language impairments: a pilot study	SLT	Describes a pilot study in which dynamic assessment is used to assess expressive grammar
26	Hasson and Joffe (2007)	The case for dynamic assessment in speech and language therapy	SLT	Discusses the origins and benefits of DA for the field of SLT
27	Hoffman *et al.* (2011)	Concurrent and construct validity of oral language measures with school-age children with specific language impairment	SLT	Investigates the psychometric properties of widely used oral language measures
28	Joffe *et al.* (2007)	Comprehension problems in children with specific language impairment: Does mental imagery training help?	SLT	Compares outcomes in literal and inferential comprehension as a result of visual imagery training
29	Karpov and Tzuriel (2009)	Dynamic assessment: progress, problems, and prospects	Education	Discusses conceptual issues relation to dynamic assessment
30	Kauffman (2007)	Conceptual models and the future of special education	Education	Compares and contrasts models of law and medical models and their implications in the identification and treatment of special education
31	Kauffman and Konold (2007)	Making sense in education: pretense (including No Child Left Behind) and realities in rhetoric and policy about schools and schooling	Education	Critiques assumptions underpinning current education policy in the United States that conflict with the idea of education as an applied science
32	Kouri *et al.* (2006)	Comparison of meaning and grapho-phonemic feedback strategies for guided reading instruction of children with language delays	SLT	Compares two feedback approaches in guided reading tasks for children with DLD
33	Kozulin (2011)	Learning potential and cognitive modifiability	Education	Discusses the relationship between thinking and learning in DA
34	Lebeer *et al.* (2012)	Re-assessing the current assessment practice of children with special education needs in Europe	Education	Describes assessment approaches to learning and impact on participation in school
35	Levy and Friedmann (2009)	Treatment of syntactic movement in syntactic SLI: a case study	SLT	Describes an explicit approach to the treatment of grammar in a school-aged child with DLD
36	Lindsay (2007)	Educational psychology and the effectiveness of inclusive education/mainstreaming	Education	Explores the tensions between inclusive education and meeting the individual needs of children with DLD
37	Marks and Stokes (2010)	Narrative-based intervention for word-finding difficulties: a case study	SLT	Describes the outcomes of a narrative-based treatment in improving word-finding and picture naming in a school-aged child with DLD

Table 1. Continued

No.	Reference	Title	Field of enquiry	Summary/purpose of the paper
38	Maul and Ambler (2014)	Embedding language therapy in dialogic reading to teach morphologic structures to children with language disorders	SLT	Explores the efficacy of embedding language therapy in dialogic reading
39	McArthur et al. (2008)	Auditory processing deficits in children with reading & language impairments: Can they (& should they) be treated?	SLT	Evaluates outcomes of reading, spelling and spoken language skills following auditory processing intervention
40	McCartney et al. (2010)	Developing a language support model for mainstream primary school teachers	SLT	Describes the development of a model for use in the classroom for teachers in delivering language learning activities
41	McCartney et al. (2011)	Indirect language therapy for children with persistent language impairment in mainstream primary schools: outcomes from a cohort intervention	SLT	Explores the outcomes of an indirect programme of SLT when implemented by education staff in schools
42	Mecrow et al. (2010)	An exploratory trial of the effectiveness of an enhanced consultative approach to delivering speech & language intervention in schools	SLT	Evaluates the effectiveness of a model of SLT to schools
43	Nash and Snowling (2006)	Teaching new words to children with poor existing vocabulary knowledge: a controlled evaluation of the definition & context methods	Education	Investigates the effects of two approaches to vocabulary learning in school-aged children with low language levels
44	Newman and McGregor (2006)	Teachers & laypersons discern quality differences between narratives produced by children with or without SLI	SLT	Discusses implications for SLT practice of teacher/lay person's ability to identify children with SLI versus those without, based on their narrative skills
45	Norbury and Sparks (2013)	Difference or disorder? Cultural issues in understanding neurodevelopmental disorders	SLT	Explores issues related to diagnosis of DLD and others
46	Pameijer (2006)	Towards needs-based assessment: bridging the gap between assessment and practice	Education	Discusses 'medical model' versus a 'problem-solving' approach to assessment and intervention
47	Phillips (2014)	Promotion of syntactical development & oral comprehension: development & initial evaluation of a small-group intervention	Education	Explores the feasibility and potential efficacy of treatment for grammar and vocabulary for children with DLD
48	Purse and Gardner (2013)	Does formal assessment of comprehension by SLT agree with teachers' perceptions of functional comprehension skills in the classroom?	SLT	Discusses implications of correlation between teacher observations and standardized measures of language comprehension for SLT practice
49	Reilly et al. (2014)	Terminological debate over language impairment in children: forward movement and sticking points	SLT	Contributes to debate in the literature about the use of terminology and criteria re children with DLD
50	Rice et al. (2016)	Specific language impairment, nonverbal IQ, ADHD, ASD, cochlear implants, bilingualism and dialectal variants: defining the boundaries, clarifying clinical conditions and sorting out causes	SLT	Explores concepts related to diagnosis such as diagnostic entity, specific boundaries, co-morbidity and causal pathways in relation to different developmental disorders
51	Riches (2013)	Treating the passive in children with specific language impairment: a usage-based approach	SLT	Describes a case study of grammar intervention using a usage-based approach
52	Rix et al. (2009)	What pedagogical approaches can effectively include children with special educational needs in mainstream classrooms? A systematic literature review	Education	Examines practices which can support the inclusion and achievement of children with SEN in class
53	Schmitt et al. (2014)	Do the symptoms of language disorder align with treatment goals? An exploratory study of primary-grade students' IEPs	SLT	Explores the extent to which the goals of individual education plans are consistent with profile of needs based on formal assessments
54	Smith-Lock et al. 2013b	Effective intervention for expressive grammar in children with specific language impairment	SLT	Establishes the effectiveness of an intervention for grammar
55	Smith-Lock et al. 2013a	Daily or weekly? The role of treatment frequency in the effectiveness of grammar treatment for children with specific language impairment	SLT	Compares the effectiveness of different dose frequencies of SLT in children with DLD
56	Threats (2006)	Towards an international framework for communication disorders: use of the ICF	SLT	Discusses the domains and underpinning concepts of the ICF-CY framework and the benefits of a standardized framework

Table 1. Continued

No.	Reference	Title	Field of enquiry	Summary/purpose of the paper
57	Tomblin (2006)	A normativist account of language-based learning disability	SLT	Discusses different assumptions regarding the identification and treatment of children with DLD
58	Tomblin and Zhang (2006)	The dimensionality of language ability in school-age children	SLT	Examines whether children's performance on language tests reflects different dimensions of language
59	Tommerdahl and Drew (2008)	Difficulty in SLI diagnosis: a case study of identical twins	SLT	Examines the language profile of each twin with different IQ levels
60	Westerveld and Gillon (2010)	Profiling oral narrative ability in young school-aged children	SLT	Discusses standardized versus criterion-based narrative assessment
61	Wickenden (2013)	Widening the SLP lens: how can we improve the wellbeing of people with communication disabilities globally	SLT	Promotes a rights-based approach and engagement with macro-socio political issues in relation to the child with DLD
62	Wolter and Green (2013)	Morphological awareness intervention in school-age children with language & literacy deficits: a case study	SLT	Describes an intervention study targeting morphology for children with DLD
63	Yoder et al. (2012)	Studying the impact of intensity is important but complicated	SLT	Discusses importance of understanding dosage in SLT in relation to spacing in learning (distributed versus massed)
64	Zens et al. (2009)	Effects of phonological awareness & semantic intervention on word-learning in children with SLI	SLT	Compares outcomes of different approaches to word learning in children with DLD

of the same ongoing process, each continually informing the other (table 1: 11, 18, 24, 29, 46).

Reliability is of primary concern in the SLT literature when measuring language and 'objective' data are sought. In the majority of papers, psychometric testing is used to measure the degree of language deficit as well as to measures changes in language skills after intervention (table 1: 3, 12, 15, 17, 21, 22, 28, 35, 37–39, 47, 51). Psychometric measures are also used to make a judgement about the reliability of information sourced from elsewhere (such as from teachers) and to determine the reliability of new assessment techniques (table 1: 2, 25, 48).

In the education literature by comparison, it is the 'ecological validity' of assessment methods which is of primary concern—namely, how well a tool or an approach reflects 'real life' learning in context—and how it might inform or direct instruction. Assessment approaches are reviewed for their validity (table 1: 11, 18, 24, 46). As such, psychometric testing in education is considered to have poor validity and to be of limited use in guiding decisions about instruction (table 1: 11, 18, 24, 29).

In comparison with the sample of papers from SLT, a broader range of assessment techniques and approaches are discussed in education. These include, 'dynamic assessment'—an approach that ascertains a child's learning potential by focusing on the process of learning (table 1: 24, 29); 'strengths-based assessment'—an approach to where data about the relative strengths of a child are gathered, which can be used to motivate learning and leverage change in areas of difficulty (table 1: 7, 18, 34; table 2: 77); and 'unstructured observation'—observation without an a priori hypotheses about the child's functioning (table 1: 19, 20; table 2: 74, 75).

Alternative methods of establishing a child's rate of progress in response to intervention in the classroom are also described. These include 'relative achievement discrepancy' (judging the child's performance against the performance of peers who have been exposed to same instruction) and 'curriculum-based measurement' (outcome measurements, which are informed by curriculum-based competencies) (table 1: 11, 24, 31).

Desired outcomes

In the SLT literature, a reduction in the severity of the child's language deficit is the most frequently measured outcome (table 1: 3, 8, 9, 15, 17, 21, 28, 35, 37, 47). Favourable outcomes are considered to be achieved when there is a significant demonstrable improvement in the degree of the deficit. A central focus of intervention is to reduce the differences between the language skills of the child with DLD and their typically developing peers.

Table 2. Policy/professional guidelines included in the study

No.	Reference	Country of origin	Title of document	Policy field	Nature of document
65	International Bureau for Audiophonology (2016)	Belgium	Inclusion of pupils with specific developmental disorders of speech and language	Health	Professional guidelines
66	Flemish Ministry of Education (2013)	Belgium	Structures of Education in Belgium—Flemish Community—2008 Brussels	Education	Professional guidelines
67	Finnish National Board of Education (2016)	Finland	The Development of Education: National Report of Finland	Education	Policy
68	National Disability Authority (NDA) (2015)	Ireland	Children's Disability Services in Ireland	Health	Policy
69	Department of Education and Science (2007)	Ireland	Special Educational Needs, A Continuum of Support	Education	Overview of educational provision
70	Irish Association of Speech & Language Therapists (IALST) (2016)	Ireland	Speech and Language Therapy Scope of Practice	Health	Professional guidelines
71	National Council for Special Education (NCSE) (2015)	Ireland	Supporting Students with Special Educational Needs in Schools	Education	Report on education policy
72	Ministry of Education (2005)	Ontario, Canada	Education for All	Education	Policy
73	Ministry of Education (2009)	Ontario, Canada	Ontario's Equity and Inclusive Education Strategy	Education	Professional guidelines
74	Ministry of Education (2001)	Ontario, Canada	Special Education: A Guide for Educators	Education	Policy
75	Education and Industry Department (2004)	Scotland, UK	A Manual of Good Practice in Special Educational Needs	Education	Policy
76	Department of Education (1994)	Scotland, UK	Special Educational Needs in Scotland	Education	Policy
77	Scottish Executive (2005)	Scotland, UK	Supporting Children's Learning, Code of Practice	Education	Guidance report for policy
78	Gascoigne (2006)	Scotland (UK wide)	Supporting Children with Speech, Language and Communication Needs within Integrated Children's Services	Health	Policy
79	Ministry for Social and Family Development (2016)	Singapore	Enabling Masterplan 2017 to 2021	Health	Professional guidelines

By contrast, a broader range of outcomes is discussed in education. These include outcomes that positively impact on the child's life and those which equip the child for life, as well as other typical educational and learning outcomes. One such outcome, much discussed in education, is *participation* in the context of the classroom and society more generally (table 1: 4; table 2: 67, 69, 73, 75, 77) where a favourable outcome is achieved when a child can demonstrate the use of new knowledge and/or skills in 'real life' contexts, such as in the classroom (table 1: 11, 20; table 2: 74).

Achieving desired outcomes

Studies that aim to establish the efficacy of SLT procedures dominate the sample of speech and language literature included in the review. In these studies, nuisance variables that might influence outcomes are controlled for, in order to establish the efficacy of specific procedures (table 1: 3, 8, 9, 17, 21). Once a technique or intervention shows promising effects under ideal experimental conditions, the technique may then be applied in 'routine' conditions, that is, in clinical practice. The desired outcome for a child (a reduction in the degree of language deficit) is best achieved by replicating these previously tested procedures in a proven prescribed 'dosage' or frequency (table 1: 8, 9, 60).

In the education literature by contrast, there is discussion that the instruction itself constitutes just one of a multiplicity of contextual factors which need to be taken into account to ensure the child with DLD can achieve and participate fully (table 1: 4, 10, 19, 20). Such contextual factors are guided by the principles of, 'inclusive education' (table 1: 4, 10, 52; table 2: 91, 73, 77). Examples include the optimal 'culture' of the classroom, namely, the values and ethos of the classroom community (including the values the teacher brings) and the relationship between the teacher and the child.

The predominant concern about the culture of the classroom is how inclusive is the environment for a child with DLD. Principles underpinning inclusive practices for the teacher are discussed, such as 'presuming competence'—underpinning practice with an assumption that all children can understand and contribute fully, regardless of their needs; 'moral equality'—that all children are equally valued, and 'democratic community'—one that intentionally 'pursue(s) freedom and equality for all' (table 1: 10, 11, 19). Examining how effectively the child with DLD is included is necessary to ensure a child can achieve and participate.

In order for the classroom culture to be inclusive, everyone who works with a child with DLD needs to be aware of their own cultural assumptions and beliefs, such as those related to difference and diversity, and how these might include, or exclude, a child with DLD (table 1: 4, 19; table 2: 73). The degree to which a teacher is responsive to the child with DLD is discussed as an important factor in enabling the child with DLD to succeed. Principles that guide such relationships and interaction include the 'ethic of caring'—the importance of supportive, caring relationships in the school life of the child; 'motivational displacement'—the teacher being fully responsive to the child; and 'engrossment'—that the child feels completely heard at a particular moment in time when interacting with the teacher (table 1: 10, 19, 20).

Nature of intervention

Differences are also evident about the nature of interventions. In the SLT literature, interventions are developed from theories of how language is acquired and/or theories of deficit, that is, from accounts of why it is that children fail to learn language (table 1: 3, 15, 17, 21, 28, 35, 37, 39). These are highly abstract, formalized, representations of language acquisition.

In the education literature, however, there is scepticism about the abstract nature of such theories and how useful they are in guiding practice and/or in achieving best outcomes (table 1: 10, 11, 18). Although not addressing theories specifically related to language acquisition, there is an assertion that many efforts to explain 'what is wrong' do not necessarily result in improved learning outcomes for the child.

From the speech and language papers, the most effective interventions to remediate a child's language deficits are *individualized* (they target the deficits of the individual child) and *specialized* (delivered by someone with specialized knowledge and skills in treating language deficits). This is explicitly discussed by Smith-Lock *et al.* (2013b).

In the education literature by contrast, there was an expressed belief, guided by equality legislation, that intervention for children with DLD should not be considered 'additional to' or 'inherently different from' the instruction of the general classroom, but rather they should be integrated within classroom instruction. This may be achieved by instruction that is guided by principles of accessibility such as 'universal design for learning' which enables individual learning differences to be accommodated (table 1: 11, 18–20, 31, 34, 46; table 2: 69, 73–75).

A shared understanding about DLD

Figure 3 has a similar layout to figure 2, with the addition of a central column to represent the shared perspectives
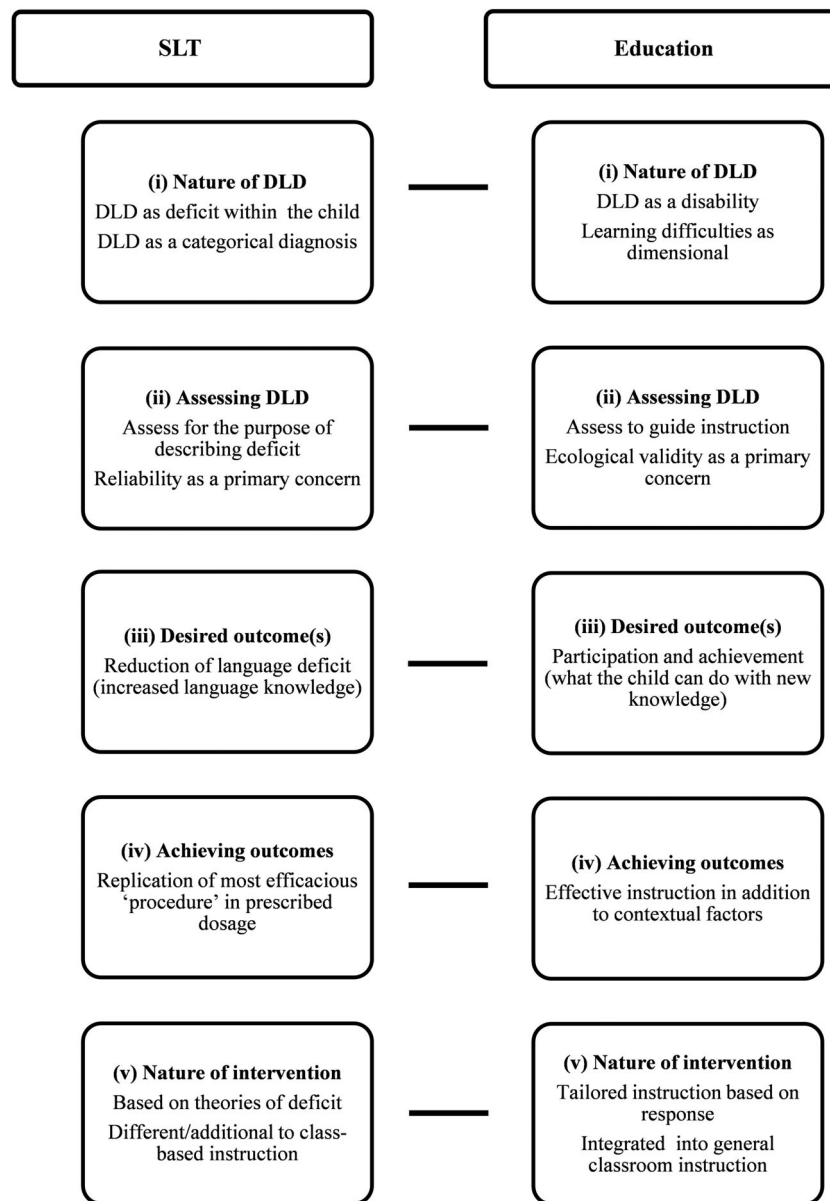
Figure 2. Key differences in perspectives between SLT and Education about developmental language disorders and how these needs can be met.

identified from the literature. In this centre column, broken and unbroken lines represent the degree to which such perspectives are shared.

The concepts or concerns present in the SLT literature which are consistent with those in the education literature are represented by arrows directed from left to right, and vice versa.

Nature of DLD

In the SLT literature, two authors questioned whether DLD should be seen from a purely 'neutralist' position, that is, as a 'pathology', free from cultural influences, or

whether a 'normative' position should be adopted: that DLD is culturally defined (table 1: 45, 62).

A 'weak normative' position was advocated by Tomblin (2006) who acknowledged the importance of considering the cultural context when describing the needs of children with DLD. This is more aligned with the dominant view in education that the environment contributes to determining what constitutes a disability.

Assessing DLD

The validity of conceptualizing DLD as a distinct diagnostic category is investigated in the SLT literature
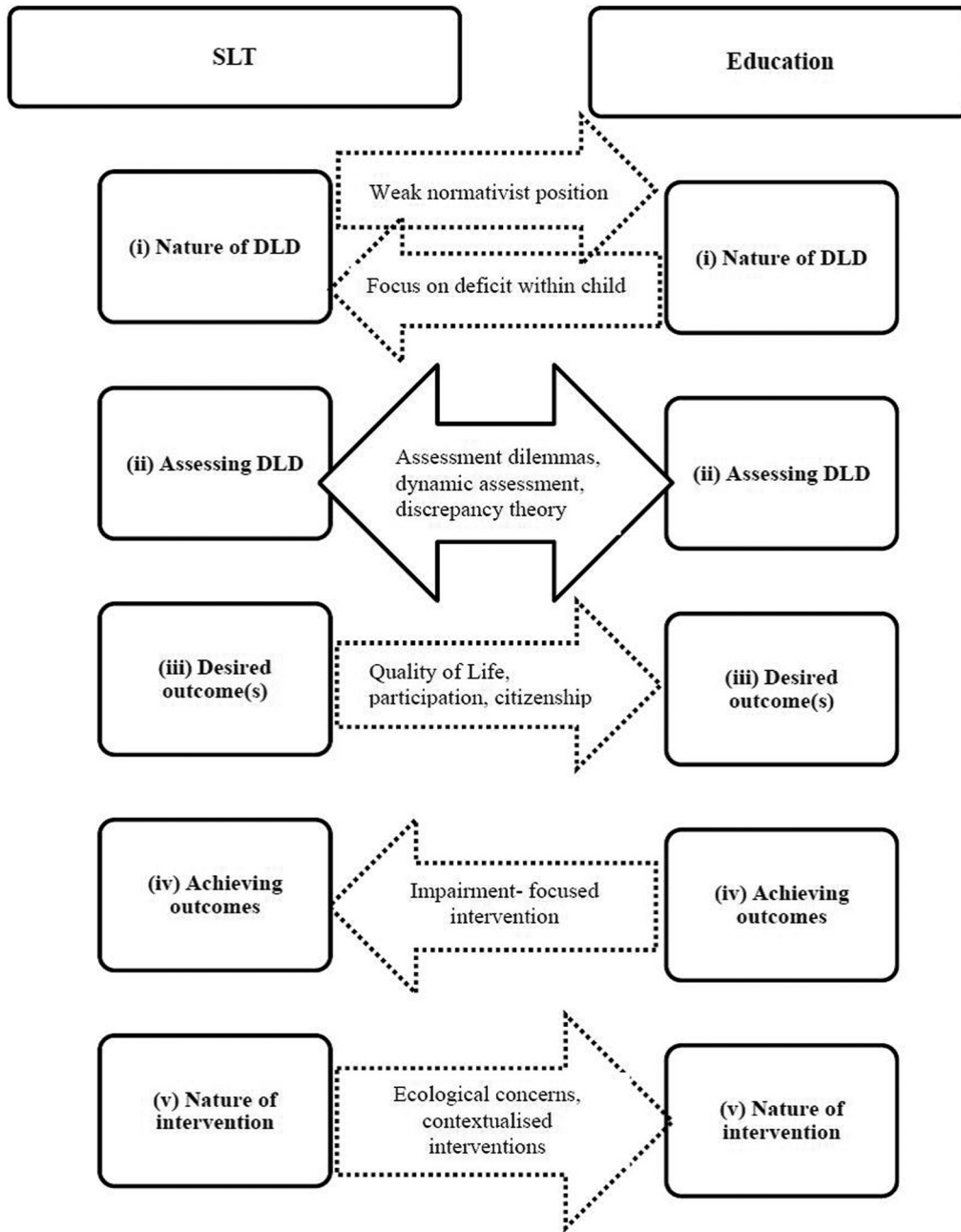
Figure 3.   Shared understanding between SLT Education about development language disorders and how these needs can be met.

(table 1: 14, 50, 63). Findings suggest that language difficulties may be better conceptualized as multidimensional—a position more compatible with the dominant view in education.

In the education literature, there is an acknowledgement that some children (such as those with DLD) will under-achieve, even when all possible causes have been excluded. These children are referred to as 'unexpected under-achievers' (table 1: 19, 36) and for such children, an investigation of their individual difficulties is required. This thinking is aligned more with the prevailing view in the SLT literature about the importance of understanding the underlying deficits within a child.

In relation to the assessment of DLD, we identified shared dilemmas, a shared conceptual understanding of dynamic assessment, and an agreed position about the use of discrepancy theory in the identification of children with DLD.

In the SLT literature there is a concern about the validity of psychometric testing (table 1: 2, 5) and an awareness that data gathered from such testing are of

limited use in guiding intervention (table 1: 25, 26). Conversely, in the education literature, there is an acknowledgement that, to understand the needs of 'unexpected under-achievers', psychometric testing *can* have a role, provided that the purpose and the limitations of such testing are acknowledged (table 1: 18, 30; table 2: 75).

A shared conceptual understanding is evident with regards to '*dynamic assessment*' (DA) and there is agreement that such a technique has the potential to guide practice. In two SLT papers, the technique was discussed as a useful technique for assessing specific areas of language (table 1: 25, 26).

Finally, the lack of empirical evidence in support of the use of discrepancy scores (differences on IQ tests compared with test scores assessing other skills) as a means of identifying children is acknowledged in both sets of literature (table 1: 1, 12, 18, 22).

Achieving desired outcomes and the nature of intervention

Desired outcomes, how best to achieve these, and the nature of intervention, all had areas of overlap in the literature. In a small number of SLT papers, authors express frustration about the nature of the outcomes that are typically considered a priority by SLTs. Wickenden (2013), for example, made a plea to consider ways in which those with communication disabilities can be supported to contribute fully in society. She discusses the importance of concepts such as 'personhood' and 'citizenship' in relation to outcomes, if the lives of those with communication disabilities are to be improved. In two further studies from SLTs, the importance of measuring outcomes more broadly are discussed, that is, the need to consider the wider impact of DLD on a child's quality of life (table 1: 16, 23). Of particular relevance, Feeney *et al.* (2012a) discussed '*school functioning*', the degree to which a child can participate in school, as being an important measure of outcome (table 1: 16). Such a perspective is aligned with those in the education literature about desired outcomes.

In terms of how best to achieve favourable outcomes for the child with DLD, the views of two authors from the education literature demonstrated alignment with the dominant position evident in the SLT literature in the review. While acknowledging the importance of protecting the rights of those with disabilities, these authors assert the need to balance these rights with the delivery of educational provision that is effective for individual children with DLD (table 1: 30, 31, 36). Lindsay (2007), for example, is concerned that, even when methodological issues are taken into account, there is a lack of empirical evidence of improved out-

comes for the individual child with DLD as a result of inclusion. Kauffman (2007) also discusses the implications of two different approaches to meeting the needs of such children—one which is underpinned by the assumptions of medicine and another by assumptions of law. He concluded that a medical approach was more likely to result in improved outcomes for that child (table 1: 30).

A final point relates to awareness in the speech and language literature of the need to develop interventions that take into account the context of the classroom, the school and/or the curriculum. Gillam *et al.* (2012), for example, set out to compare the effectiveness of two interventions: one that was 'contextualized' (informed by the curriculum) and a second described as 'de-contextualized' which was not. McCartney *et al.* (2010) developed a framework for teachers to increase opportunities for language learning in the classroom, and Botting *et al.* (2015) evaluated an intervention package that was implemented school-wide.

Discussion

IPC is a common policy goal across health and education as a means of ensuring that children with additional needs can participate and achieve in school. A shared understanding has been identified as important, if professionals are to collaborate effectively together.

We undertook a comprehensive analysis of empirical, theoretical and policy papers to gain an understanding of the ways in which perspectives about the needs of children with DLD in the literature between SLT and education were aligned, and where they differed.

In our study, the following commonalities from the two literature sets were identified: an interest and awareness in the SLT literature about the context of the classroom; some shared dilemmas about assessment; a shared conceptual understanding about dynamic assessment as a means of informing intervention; and agreement regarding the (mis)use of discrepancy criteria when identifying children with DLD.

A shared understanding was evident in a small number of the education papers with those from SLT about the importance of measuring the efficacy of instruction when working with children who have special educational needs.

However, we also found many differences in perspective. These included how DLD is conceptualized, how the needs of children with DLD can be assessed, what are desired outcomes for this population, and how such outcomes can best be achieved.

We have mapped these key differences according to the International Classification of Functioning, Disability and Health (ICF) developed by the WHO (2010),

before exploring the possible implications of these differences for IPC.

The ICF offers a standard approach to describing an individual's health condition and their associated functioning. It includes four domains: Body Structure & Function, Activity, Participation, and Contextual factors (environmental and personal).[7]

Figure 4 highlights the dominant domains from the SLT literature analyzed in black and those from the education literature in grey. We also show any strong and weak connections found between the domains, within and across the fields of enquiry.

In the SLT literature, DLD is viewed as a health condition. There is a strong focus on understanding the ways in which DLD differs from other diagnostic categories and/or accounting for the ways in which the cognitive functions for language might be impaired. Interventions are developed to remediate such impairments in language function.

Implicit in this literature is the assumption that understanding the deficit within the child is key before effective intervention can be delivered. Norwich (2009: 3) describes this approach as 'diagnostic—education program planning'.

By contrast, a main concern in the education literature relates to how *environmental factors* (the classroom setting and classroom instruction) can be adapted to minimize the impact of any factors which might act as a barrier to a child's learning. There is limited reference to diagnostic categories, apart from warnings of the dangers of categorizing children based on these.

From the education literature, the purpose of assessment is not to diagnose, but to guide decisions about adaptations which may be required to the classroom environment. Preferred methods of assessment are therefore those which are context bound. When assessing, it is the scaffolding that is put in place and the child's response to this which is of interest. Such processes are typically controlled for when making a diagnosis of DLD.

While both fields of enquiry are concerned with limitations in *activity*, there are differences in how such limitations are judged. In the SLT literature, activity was primarily described in terms of (poor) performance on specific language tasks, whereas in education a judgement is made based on activities related to the curriculum and/or a child's participation within the classroom.

Participation is a central concern in the education literature analyzed, where the concept has been fully operationalized and a tool has been developed to guide research and practice. While participation is referred to as a desired outcome in a limited number of policy and theoretical papers, it is not an outcome measured in intervention studies in the SLT literature.

Implications for inter-professional collaboration

Three potential implications for SLTs and teachers when collaborating in school to meet the needs of children with DLD are discussed. The first relates to navigating 'dilemma(s) of difference', the second to 'negotiating shared outcomes' and the third is 'what constitutes knowledge to guide practice'.

In the SLT literature, the dominant focus is *seeking to understand difference* versus the education literature where *adapting the environment to the benefit of all children* is key. This may embody the 'dilemma of difference' first described by Minow (1985) and Norwich (2009) about how the individual learning/language needs of a child can be identified and support planned, without setting a child apart from their peers.

The identification of differences between the child with DLD and their peers may allow interventions to be delivered that are tailored to these individual needs. However, by identifying/labelling a child based on their difference(s), there is a risk that child may become stigmatized and segregated from their peers in school.

Seeking similarities between the child with DLD and their peers on the other hand (a dominant perspective in education) facilitates inclusive practices in the classroom—but the effectiveness of such approaches for the child with DLD, according to some, has not been fully demonstrated (Lindsay 2003). These differences can be traced back decades, to broader debates about medical versus social theories of disability (Kristiansen *et al.* 2008).

If such a dilemma continues to be a practice reality, then, as suggested by Norwich (2009) a reconceptualization of SEN is required. He proposes a set of three dimensions by which children with SEN could be grouped with their peers in the classroom, which allows for both commonality and difference to be identified (Norwich 2009). Such a framework might be useful for SLTs and teachers when working together to meet the needs of children with DLD in school.

A second finding relates to differing priorities that result in a lack of shared outcomes—identified as being essential for effective IPC (D'Amour *et al.* 2005, McKean *et al.* 2017). In the SLT literature, the focus of interest was to address a child's *impairment*, namely, to show a measurable reduction of the language deficit and/or that the child has improved in language skills. In the education literature, acquiring a new skill is not necessarily valued as an outcome; the child must be able to use such a skill in curriculum-based tasks. The latter approach has an emphasis on the child's ability to convert new skills or resources into valuable functioning (also known as performance) in the classroom (Sen 1992).
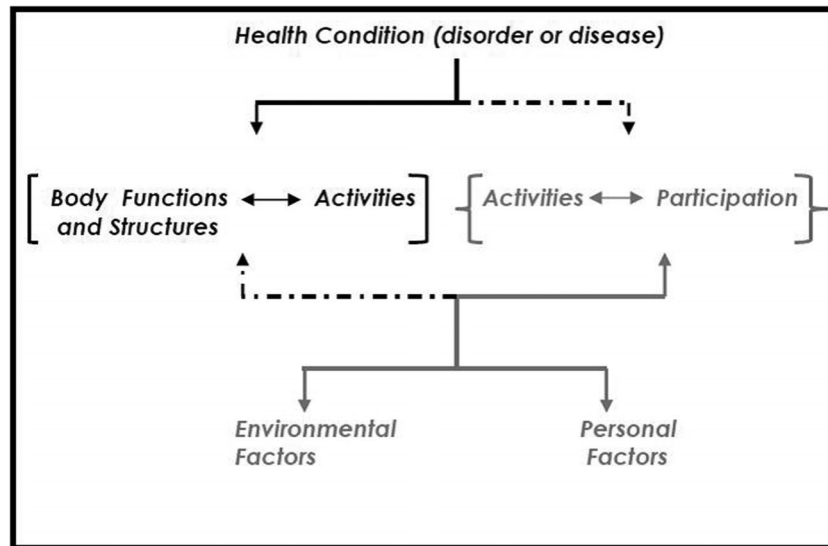
Figure 4. Key findings of the study mapped to the domains of ICF.
Note: Perspectives in SLT are marked in black font and those in education are marked in grey font.

These differences may reflect what Tomblin (2006) describes as *differences in the values of the professions.* In SLT, language is a skill of value in its own right, and therefore if language is poor, a child is considered to require intervention. For teachers this may not be the case, unless there is a demonstrable lack of progress on curriculum-based measures. Negotiating a shared set of outcomes likely involves generating a shared set of *values* together, in relation to a child with DLD. The findings from one case study of SLT teacher co-practice provide some support for this (McKean *et al.* 2017).

It is not sufficient for practitioners to work effectively together—their work also needs to be guided by the best available evidence. A third implication of the findings may be related to what constitutes the 'best' or most 'useful' evidence to guide practice. Cochran-Smith and Lytle (1999) define three different types of knowledge in relation to practice: knowledge *of* practice, knowledge *for* practice and knowledge *in* practice and each is of relevance for this paper.

The focus in the SLT literature included in this review is in generating knowledge *for* practice. This focus can be traced back to the evidenced-based medicine movement, which makes explicit how clinical research should be carried out and implemented. One critique of this approach is that, in generating knowledge of this kind, there is an uncoupling of theory from practice and theory from any sociocultural context in which it is to be applied, resulting in unintended negative consequences (Greenhalgh *et al.* 2014).

When SLTs collaborate with teachers in order to optimize practice in the classroom for the child with DLD, such knowledge may not be useful due to the complex contextual factors at play in this environment. Two re-searchers who explored the views of teachers and/or how well SLT programmes are implemented in schools suggest that there may be a mismatch in the type of knowledge that teachers seek and the knowledge that an SLT brings when working in schools (Dockrell and Lindsay 2001, McCartney *et al.* 2011).

We are aware that there is a considerable and burgeoning body of literature in health and education about such epistemological and/or ontological issues and it is beyond the scope of our paper to discuss these. However, we concur with McCartney (2009: 47) that if such knowledge differences exist between the practitioners then it may be 'a very sticky sticking point indeed'. It may be that if SLTs and teachers are to collaborate effectively then they need to generate knowledge together that 'fits' with teaching and learning in the classroom, that is, knowledge *in* practice. Such knowledge could inform, as well as be informed by, empirically tested concepts and theories.

Limitations

We may have found more commonality in the literature had we used theoretical sampling, rather than systematic searching for empirical and theoretical papers. Conversely, this systematic search strategy where search terms were explicit and searches can be verified adds to the transparency and rigour of this type of review and can be duplicated.

It was beyond the scope of this review to explore the grey literature. As a result, perspectives and practices that exist in the fields of SLT and education literature related to school-aged children with DLD may have been excluded.

A further limitation of the study relates to the classification of the papers. The majority were classified by the authors as 'education' or 'SLT' papers, based on the practice that was explicitly referred in the text. For the small number of papers where this was not possible, other criteria, such as professional/academic backgrounds of authors and/or citations, were used. Such classification systems are not without error and reliability would have been improved by including a group of stakeholders in the process. However, we concur with Barley *et al.* (1988: 28) that authors usually consider the audience they wish to influence and channel their papers accordingly and therefore we believe our classification can be justified.

A final limitation relates to terminological variance regarding DLD. Although we used many different terms and synonyms in our final search string, we acknowledge that some papers may not have been included. Despite acknowledged limitations in this paper, we have achieved what we set out to do; namely, to examine the literature, as one source of data, for evidence of a shared understanding between SLT and education about DLD and about how these children's needs can be met in school.

Conclusions and the next steps

IPC between SLTs and teachers has been a policy recommendation for many years when working with children with DLD in school, yet it remains difficult to achieve in practice. Researchers have proposed that one possible barrier is a lack of shared language and understanding between the fields of SLT and education.

In this paper, we report the findings of a comprehensive review of the literature which aimed to examine evidence of a shared understanding about DLD between the fields. We found some commonality, but it was the differences in perspective which dominated. We have described the nature of these differences and explored potential implications of these for practitioners when collaborating.

Integrating perspectives from this review of the literature with those of stakeholders will allow us to determine the extent to which the findings reflect dilemmas in practice and whether a conceptual model to guide IPC between SLTs and teachers is warranted. Understanding and supporting collaboration at this micro-level is essential if speech and language services and supports for the many children in school with DLD are to be improved.

Acknowledgements

Notes

1. See Bishop *et al.* (2016, 2017) for further details about how this group is classified in relation to other types of speech, language and communication needs.
2. We included papers that referred only to children with language-learning difficulties where the cause is unknown. We excluded papers that referred to language difficulties associated with a known cause and those that discussed a range of speech and language needs.
3. In the UK and Ireland, children receive primary or elementary education from the ages of 5–12 in primary school (after preschool and before secondary school). The review was limited to this age group as we considered preschools and secondary schools to be very different practice contexts.
4. It explicitly discusses the implications of findings for practice.
5. We limited our search to the last 10 years as this decade reflects contemporary mores and practice.
6. As defined, the term 'DLD' is not used in the education literature in relation to this population. For clarity when presenting the results, however, we use the term 'DLD' throughout.
7. See WHO (2010) for definitions of these domains.

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Appendix

Table A1. Example of full electronic search string (empirical)	
Database	Search string
Medline/PubMed/Cochrane	'language development disorder' OR 'language disorder' OR 'communication disorder*' NOT 'acquired language disorder*' NOT 'speech delay' NOT 'delay, speech' OR 'Communication—Study & teaching' OR 'developmental language difficulties' OR 'speech, language and communication needs' OR 'language disorders—research' OR 'language disorders in children') AND ('child language' OR child OR school OR adolescent OR minors OR 'school-age*' OR 'primary' OR 'elementary' OR 'secondary' NOT 'pre-school' NOT 'kindergarten') AND ('language therapy' OR 'speech and language' OR 'service delivery' OR consultative OR integrated OR collaborative OR 'language intervention' OR 'language instruction' OR 'special needs support' OR 'class-based' OR 'school-based' OR 'learning support' OR 'specialist language' OR 'resource teaching' OR 'communication intervention' OR 'education* provision' OR small-group intervention' OR 'milieu teaching' OR programmes OR' speech-language pathology' NOT 'second language' OR 'conceptual framework' OR 'consultative model' OR 'evidence-based education' OR 'evidence-based practice' OR 'health care delivery' OR 'Health education*' OR 'Health resource education' OR 'Health care delivery' OR intervention OR 'literature review' OR 'mainstreaming (education)' OR 'models Organizational*' OR 'reading intervention' OR research OR models OR 'service delivery' OR 'speech and language therapists (SLTs)' OR 'speech & language therapy' OR 'speech language pathologist' OR 'speech therapy intervention' OR 'speech-language pathology—In infancy and childhood' OR teachers OR 'teaching methods') AND ('language tests' OR 'vocabulary' OR 'comprehension' OR 'expressive language' OR 'receptive language' OR 'communication skills' OR 'communication outcomes' OR 'social skills' OR literacy OR reading OR comprehension OR vocabulary OR exam* OR curricul* OR emotion* OR behaviour* OR attention OR friendship* OR participation OR 'quality of life' OR 'British Picture Vocabulary Scale' OR 'Bus Story' OR 'Clinical Evaluation of Language Fundamentals' OR 'Dose-Response Relationship' OR 'Effect Size' OR Grammar OR 'Individual Reading Analysis' OR 'Information scale' OR 'Treatment Duration' OR 'Treatment Outcomes' OR Vocabulary OR 'Wechsler Objective Language Dimension' OR 'Test of Reception of Grammar'