Research Article

Exploring the uptake of CATALISE recommendations from the perspective of speech and language therapists working in the Irish context: A qualitative online survey

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Abstract.
BACKGROUND: The Irish Association of Speech and Language Therapists (IASLT) has led on a series of implementation efforts since the publication of recommendations regarding terminology and diagnosis of developmental language disorder (DLD) by the CATALISE Consortium in 2017.
OBJECTIVE: To explore the views of speech and language therapists (SLTs) about the effectiveness of IASLT dissemination efforts in relation to the CATALISE recommendations to inform the development of a national DLD implementation strategy.
METHODS: A self-administered qualitative e-survey was designed. A purposive sample of SLTs working in Ireland was recruited using a maximum variation strategy. The survey included closed and open questions. Qualitative data were analysed deductively using constructs from the Consolidation Framework for Implementation Research. Findings were integrated using concepts from the RE-AIM framework.
RESULTS: Dissemination methods were considered effective at the preadoption stage. However, barriers to early use of the CATALISE recommendations were identified related to low practitioner self-concept, the complex nature of the required practice changes, and a lack of compatibility with service pathways. Misalignment across health and education policy was identified as a barrier to uptake of the recommendations for those working in schools. Ongoing opportunities for case-based discussion was viewed as an important component of future implementation efforts. The importance of engaged leadership in overcoming implementation barriers is also highlighted.
CONCLUSIONS: A targeted multi-level implementation strategy developed by an inclusive stakeholder network including speech and language therapy managers is required to support the full adoption of the CATALISE recommendations into policy, service, and practice in the Irish context.

Keywords: Developmental language disorder, implementation science, speech and language therapy, qualitative research

1. Background

Developmental Language Disorder (DLD) is a neurodevelopmental condition characterised by language difficulties which negatively impact an individual's social, emotional, and academic functioning. People with DLD may have difficulty understanding and using spoken language, and the condition is unlikely to resolve without specialist help (Bishop & Leonard, 2014; McGregor, 2020; Paul, 2020). International studies suggest that around 7% of the childhood population has DLD (Norbury et al., 2016; Tomblin et al., 1997), making it one of the most prevalent neurodevelopmental disorders. The

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condition cannot be attributed to a single known biomedical cause; however, understanding of factors associated with the condition has advanced greatly in recent years from population-based studies conducted mainly in the UK, Scotland, Australia, the US and Canada (McKean et al., 2017; Raghavan et al., 2018; Reilly et al., 2007). A family history, in combination with maternal education levels, and socio-economic factors have been identified as increasing the risk of persistent language needs (Plug et al., 2021; Tomas & Vissers, 2019).

Developmental language disorder is considered a hidden disability in part because many of the characteristics associated with the condition are not easily observable. In the US, the needs of children with DLD are reportedly under-identified compared with other more obvious needs such as those related to speech, emotional behavioural needs and/or physical and sensory impairments (McGregor, 2020). This appears to be the case in the Irish context also from the limited data available. Findings from a population-based sample of thirteen-year-olds in Ireland with and without disabilities showed that speech, language, and communication needs were significantly under-reported compared with other disabilities (Gallagher et al., 2020), and a recent qualitative exploration of DLD in Irish schools noted poor awareness of the condition amongst teachers also (Gibbons et al., 2022).

The under-identification of DLD is of concern because there is a consistent body of evidence, spanning several decades, that shows a negative long term impact if the condition is left untreated (Conti-Ramsden et al., 2012; Law et al., 2009). A longitudinal 30-year follow-up study of children with language impairment over a decade ago found literacy difficulties, unemployment, and low socio-economic status at rates markedly higher in this population than in the general population (Elbro et al., 2011). A more recent cohort study in Australia reported that children aged four to nine years with low language attainment (>1.25 standard deviations below the mean) had reduced quality of life scores, with a further decline noted for many as they got older (Eadie et al., 2018).

One of the reasons that DLD continues to be under-identified relative to other neurodevelopmental conditions is in part due to a history of terminological confusion, and a lack of consensus on key inclusion and exclusion criteria for diagnosis (Bishop, 2014). The use of over 32 different terms for the population, and the continued use of non-evidence-based diagnostic criteria have perpetuated significant inequities

in service access for this population (Bishop, 2014; McGregor, 2020; McGregor et al., 2020). There has been ongoing debate and discussion in the field of speech and language therapy about terminology and diagnostic criteria in relation to DLD, culminating in a multi-national Delphi study led by Bishop et al. (2017) The consensus process included a purposive sample of UK-based SLTs and researchers with some representation from the fields of education, medicine, psychology, and audiology (the CATALISE consortium). A series of recommendations regarding criteria and terminology for persistent language difficulties, and a new classification to understand childhood speech, language and communications needs including DLD were proposed as a result of the consensus process (Bishop et al., 2017; Bishop et al., 2016).

1.1. Policy and service context in the Republic of Ireland

In Ireland, children with DLD typically access speech and language therapy services as part of the public health system, the Health Service Executive (HSE). Supports may be delivered by SLTs working in publicly funded primary care teams, disability services or child and adolescent mental health services. A small proportion of children with DLD may meet the criteria to attend a language class. Language classes are attached to mainstream schools, with speech and language therapy intervention integrated within the educational provision. More recently, speech and language therapy supports have been delivered in schools by SLTs employed by the National Council of Special Education as part of a pilot project (Lynch et al., 2020). This service is currently limited to one of nine community healthcare areas in Ireland, with further plans underway to develop regional networks to build school capacity in supporting speech, language and communication needs. Several community-based, early intervention models of care provide speech and language therapy services within preschools and other early years settings (Quigley et al., 2022). Ireland has a mixture of public and privately funded health care, and many families of children with DLD also access private speech and language therapy services. There is a paucity of robust service data with regards to children and young people with DLD in Ireland with parent reports suggesting wide variation across the country, and limited SLT involvement beyond primary school age (Irish Association of Speech and Language Therapists, 2017). To the best of the authors' knowledge,

few services exist in Ireland that address the needs of adults with DLD.

1.2. CATALISE implementation in Ireland

In 2017, the IASLT adopted the label DLD as their official terminology, in keeping with the recommendations from the CATALISE consensus process. A position paper was published subsequently (Irish Association of Speech and Language Therapists, 2017), integrating data from a range of sources to develop best practice guidelines for DLD. Soon after the publication of the position paper, an IASLT DLD implementation group was convened. The group comprised of SLTs with knowledge and skills in DLD working across a variety of service settings including primary care, language classes, mental health services, physical disability services, and in higher education. The aim of the group was to disseminate the findings of CATALISE amongst SLTs and key stakeholders across Ireland. Planned activities were guided by the Concerns Based Adoption Model (Hall & Hord, 1987; Khoboli & O'Toole, 2012), specifically targeting the preadoption and early use stages. The preadoption stage focuses on ensuring that intended adopters are aware of an innovation, and that they have easy access to readily digestible information. The early use stage focuses on ensuring that adopters have continued access to information, as well as access to training and support on specific clinical skills related to the innovation.

To identify priority training and support needs an exploratory session was facilitated by members of the IASLT DLD implementation group with members of the DLD special interest group. Stakeholders in Ireland, like in many countries, have engaged in similar efforts. However, no published studies exist to the best of the authors' knowledge that have explored uptake of CATALISE recommendations that might guide the development of an effective targeted implementation strategy.

1.3. Study aims

The aims of the study were to explore views of the effectiveness of dissemination methods undertaken by the IASLT in relation to the uptake of the CATALISE recommendations, and to identify barriers and facilitators to adoption from the perspective of SLTs working in the Irish context. An understanding of the views of early adopters in relation to dissemination efforts has the potential to generate actionable knowledge to guide future implementation plans.

2. Methods

2.1. Ethical approval

The study met the criteria for exemption of full ethical review set out by best practice ethics guidelines (Royal College of Physicians, 2007), as determined by the IASLT standards committee. The survey was considered a service evaluation in exploring the effectiveness of activities of an IASLT working group from the perspective of their members, the procedure was low risk, and non-invasive in nature, all participants were adults and not specified as vulnerable individuals, and all participants were required to provide informed written consent to participate in the study after being fully informed of the research aims, procedures, benefits, and risks of participation. Anonymous response settings were used to ensure no identifiable information was recorded. Participants were informed that they could skip questions and/or withdraw from the survey at any time. Data processing adhered fully to the IASLT data privacy policy.

2.2. Study design

A qualitative survey was conducted with a purposive sample of SLTs across Ireland. Data collection methods were originally planned to include focus groups, however due to public health restrictions at the time of the study this was not possible. Many SLTs were seconded to public health roles in response to the pandemic making online focus group attendance difficult also.

Qualitative surveys differ from quantitative surveys in several important ways. Quantitative surveys provide a means of data collection aimed at confirming or testing a theory or an assumption. A sample of a large population is studied to find out the repeating patterns and themes. Sampling strategies in quantitative surveys, typically probabilistic, must allow for findings to be generalizable to the population from which the sample is drawn. Qualitative surveys on the other hand are used to explore topics from the perspective of a sample of carefully chosen individuals to gain an in-depth understanding of the phenomenon of interest (Braun et al., 2021).

In qualitative surveys, researchers provide some contextualising information or key definitions to help

frame how participants view the qualitative survey questions, since they can't directly ask the researcher about it in real time. Participants are then requested to respond to questions in text in some detail to explain their perspective. Qualitative surveys typically include open-ended questions presented to participants in written format via email or within an online survey tool, often alongside quantitative survey questions on the same topic. The quantitative data collected in a qualitative survey from closed questions provide more insights about the sample, and allow for cross tabulation in the analysis, but are not generalizable beyond the sample recruited. The Standards for Reporting Qualitative Research were adhered to in reporting the study (O'Brien et al., 2014).

2.3. Sampling and recruitment

Speech and language therapists with experience of working with children and young people who have DLD were purposively recruited. A maximum variation sampling strategy was employed (Suri, 2011) to ensure that participants from a diverse range of service settings, professional roles, years of professional experience, and geographical locations across Ireland were included.

As no national database of eligible SLTs exists in Ireland, participants were recruited via professional networks. These networks were contacted via phone call initially and with agreement from relevant gatekeepers, a follow up e-mail attaching study information and the survey web-link were sent by email for circulation to their network/team members. Study details and the link were also posted on social media platforms (Facebook and Twitter).

Study information was also published on the IASLT website. Regular checks of survey responses were undertaken while the survey was open to ensure a diverse sample, and additional snowballing techniques were used where necessary to target specific sampling criteria.

2.4. Survey development

A set of draft questions, mainly set out in open text format, was initially prepared by two members of the IASLT DLD implementation group and piloted by SLTs ($n = 4$) to assess usability and clarity of the tool (Burns et al., 2008). Feedback from the pilot highlighted issues of feasibility and risk of drop out due to the time demands of open-ended questions.

As a result, closed questions using Likert scales were also included.

The survey included three sections. In section one, participants were presented with closed questions related to the grade of their current role (Q 1), which service context they worked in (Q 2), their years of professional experience (Q 3), and the proportion of children with DLD on their caseload (Q 4). In Question 5, participants were asked to rate their confidence in diagnosing DLD based on the new criteria on a five-point Likert scale (*not at all confident, not so confident, somewhat confident, very confident, extremely confident*). In Question 6, participants were asked whether or not they had adopted the findings of CATALISE in their practice (*yes, no*), and invited to expand on their answer in an open-ended question.

Section two related to views of the effectiveness of the IASLT DLD implementation group. In Question 7, participants were asked the extent to which the work of the group had influenced their practice using a five-point scale (*not at all, not much, not sure, somewhat, significantly*). In Question 8, participants were asked which dissemination and diffusion activities they had engaged with from a choice of nine. *Diffusion* is defined as the passive spread of changes, and dissemination methods relate to more active and planned efforts to facilitate adoption of an innovation (Greenhalgh et al., 2004). The choices given were linked to the core activities of the IASLT DLD implementation group. In Question 9, participants were asked their views of the effectiveness of four methods of dissemination using a five-point Likert scale (*not at all effective, not so effective, somewhat effective, very effective, extremely effective*). The four methods were chosen to determine whether they should or should be included in future implementation planning. Two open text questions followed. In Question 10, participants were asked to describe their own dissemination efforts in as much detail as possible. In Question 11, participants were invited to elaborate on their view of these dissemination and diffusion efforts since the publication of CATALISE.

In section three participants were invited to respond to four open ended questions related to barriers and enablers to uptake of the CATALISE recommendations. In Question 12, participants were asked to describe any barriers to uptake that they had experienced. In Question 13, participants were asked about other activities that might help enable uptake of the CATALISE recommendations amongst practitioners. In Question 14, participants were asked their views about other activities that might enable

uptake amongst children with DLD and their families. In the final survey question, participants were asked to identify priorities for future implementation planning. The survey was open for 8 weeks from January 2021-March 2021. A copy of the survey is included in appendix 1.

2.5. Data analysis

Responses to closed questions were collated and proportions and percentages of response rate per question were calculated. Answers to each of the open text questions were downloaded and converted from PDF to Xcel datasheets for analysis. Qualitative data analysis was guided by the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2015; Damschroder et al., 2009). The CFIR is a meta-theoretical framework, organised into five domains and constructs, developed to create a consistent vocabulary in implementation science research. The framework has been used widely in implementation science studies across a range of health service research contexts previously. Data were organised into CFIR constructs by two researchers (SF and RD). Three concepts from the RE-AIM framework (effectiveness, adoption, implementation) were used to integrate quantitative and qualitative data (Glasgow et al., 2019). This framework has been piloted for use by researchers in implementation science and in health promotion as well as a means of exploring the impact of real-world interventions and/or implementation efforts (Gaglio et al., 2013).

3. Results

3.1. Participant characteristics

Eighty-eight SLTs completed the survey. As responses were anonymous, non-respondent analysis and efforts to identify multiple entries from the same individual were not possible. Questions were optional, therefore the number of SLTs who answered each question varied. Eighty-four SLTs answered Question 1. Of those over half of SLTs reported working at a senior grade ($n = 47$) and just over a third at staff grade ($n = 31$). The sample included SLTs in management roles ($n = 2$), clinical specialist roles ($n = 2$), and lecturer roles ($n = 2$). Further details of the SLT characteristics are presented in Table 1.

Seventy-five SLTs completed Question 5, rating their confidence in diagnosing DLD using the new recommendations. Of those, four SLTs selected *extremely confident* (5%), 26 SLTs selected *very confident* (34%), 35 SLTs selected *somewhat confident* (47%), eight SLTs selected *not so confident* (11%), and two SLTs reported they were *not at all confident* (3%).

3.2. Effectiveness

Sixty-nine SLTs provided views of the extent to which the IASLT group had influenced their practice (Q 7). Of those, 30 SLTs (43%) reported that the group had influenced their practice *significantly*, 24 (35%) reported that the group had influenced their practice *somewhat*, eight SLTs (12%) selected *unsure*, five SLTs (7%) selected *not much*, and two SLTs (3%) reported the group had not influenced their practice *at all*.

Sixty-eight SLTs responded to Question 9a, asking their views of the effectiveness of reading the position paper. Of those, 88% selected *very* or *extremely effective,* 10% selected *somewhat effective* and the remaining 2% selected *not so effective*. Fifty-six SLTs responded to Question 9b, asking their views of the effectiveness of watching the DLD webinars. Of those, 77% selected *very* or *extremely* effective, 16% selected *somewhat effective*, 5% selected *not so effective*, and 2% selected *not at all effective*. Thirty-seven SLTs responded to Question 9c, asking their views of the effectiveness of attending the DLD special interest group. Of those, 89% selected *very* or *extremely* effective, 5% selected *somewhat effective*, 2% selected *not so effective* and 2% selected *not at all selected*. Twenty-three SLTs responded to Question 9d, asking their views of the effectiveness of the online gathering. Of those, 78% selected *very* or *extremely* effective, 13% selected *somewhat effective*, 2% selected *not so effective*, and 2% selected *not at all effective*.

Forty-one SLTs responded to the open-ended question regarding their own dissemination efforts (Q 10). Of those, twenty-three SLTs (56%) reported conducting educational meetings either within their own team of SLTs or with wider stakeholders. Stakeholders included parents, those in education and/or members of wider multi-disciplinary teams. Five SLTs (12%) reported organising meetings which involved protecting time to reflect on implementation efforts and/or supporting team members in implementing changes. Thirty-six SLTs (88%) reported developing and shar-

Table 1
Participant Characteristics

Years of SLT experience	
Total n responses = 88 *n* (%)	
1–3	22 (25%)
3–5	9 (10%)
5–8	12 (14%)
8+	45 (51%)
Proportion of caseload working with Developmental Language Disorder	
Total n responses = 76 *n* (%)	
Large proportion	13 (17%)
Around half	24 (32%)
Small proportion	39 (51%)
Other	0 (0%)
Service setting	
Total n responses = 88 *n* (%)	
Primary care	59 (77.6)
Language class	24 (31.6)
Disability services	36 (47.4)
School-based services	23 (30.3)
Mental health services	6 (7.9)
Private SLT services	20 (26.3)
Other	3 (3.95)
SLT grade	
Total responses = 85 *n* (%)	
Staff grade	31 (36.5)
Senior	47 (55.3)
Clinical Specialist SLT	2 (2.4)
Manager	2 (2.4)
Lecturer	2 (2.4)
Other	1 (1.9)

Note SLT = Speech and Language Therapist.

ing educational materials with their team or wider stakeholders as part of the international RADLD awareness campaign. One senior SLT reported engaging in several methods of dissemination including audit and feedback efforts:

"In house research to identify knowledge, practice, confidence and barriers to practice when working with CYP with DLD. Findings shared with team and DLD SIG. Auditing of % CYP with DLD on caseload, multiple training events for SLT staff re. DLD, including journal clubs, allocated time to watch IASLT webinar, facilitating group case discussions, developing, and sharing of resources specific to DLD. - Development of DLD specific pathways in service"

Thirty SLTs provided added responses when invited to comment on dissemination and diffusion efforts specific to the Irish context (Q 11). Comments related primarily to service level constraints including: time constraints (*n* = 5), low relevance to current clinical caseload (*n* = 5), dissemination efforts perceived to be outside of the role of the SLT (*n* = 3), lack of confidence (*n* = 1), and lack of experience working as an SLT (*n* = 2). One response was not completed.

3.3. Adoption

Seventy-two SLTs responded to Question 5, asking whether or not they had adopted the term DLD in their practice. Of those who responded, 71 SLTs selected *yes* (97%), and one SLT selected *no* (3%).

Twenty-eight SLTs provided a detailed response to barriers to adoption (Q 12). Of these, nineteen SLTs (68%) discussed barriers at the practitioner level. Most frequently cited barriers were a perceived gap in SLT knowledge and understanding of the new criteria, and low self-efficacy or confidence in implementing the changes in practice. Some SLTs (*n* = 5) perceived that there was still terminological confusion and professional myths about DLD evident amongst their peers. One such myth cited was the idea that a child with a spikey profile (i.e., where cognitive levels were deemed higher than language levels) makes better progress with intervention than children with a flat profile.

Some SLTs (7%) noted that since the new terminology and criteria, there was reticence to make a diagnosis of DLD amongst practitioners in their ser-

vice setting. From the perspective of a senior SLT working in a language class, this was related to the nature of the changes, specifically the lack of clear cut-off scores:

> *"I think there is a general feeling that my SLT colleagues don't feel fully confident to diagnose DLD given the shift away from using the (discrepancy) criteria"*

A quarter of SLTs who responded to Question 12 identified barriers at a service level. Most comments related compatibility issues with processes and systems such as assessment pathways, and report formats. Limited resources were discussed as a barrier to implementation by two SLTs in management roles. The new criteria were viewed by these respondents as more expensive to implement, requiring a more comprehensive assessment process. This more comprehensive process was not considered feasible for SLTs to undertake within current service constraints.

One SLT discussed a reluctance on the part of their speech and language therapy manager to adopt the recommendations for funding reasons. This lack of management support was viewed as a significant barrier to adoption of the CATALISE findings in their service context.

At the policy level, the most frequently discussed barrier was a lack of alignment between health and education with regards to the continued use of discrepancy criteria to determine access to language classes:

> *"The DES (department of education and skills) criteria being out of line with our DLD diagnostics is a significant barrier to adoption for us"*

> Senior SLT, Primary care

3.4. Implementation

Forty-two SLTs responded about other resources or activities that would help facilitate adoption of the CATALISE terminology and criteria going forward amongst practitioners (Q 13). Just over half of SLTs who answered this question identified case-based peer learning opportunities as an important means of building practitioner confidence in their own decision making. Fourteen SLTs (33%) stated the need for access to more guided workshops, study days and DLD Special Interest Group meetings. Seven SLTs (15%) mentioned that opportunities needed to

be ongoing and to allow for SLTs to bring along cases:

> *"I'd love an opportunity for ongoing case discussion, questions, and answers, to bring them along as needed"*

> Senior SLT, private practice

Thirteen SLTs (30%) spoke about the need for continued access to readily available and easily digestible DLD information. SLTs stated a preference for practically-focused information that was updated regularly with the latest research. Examples given included: additional short information webinars on evidence based DLD assessment and intervention techniques, online posters/ simple infographics with key information, policy briefs with new research findings, usable report templates for assessments, podcasts, and some means of judging the quality of information sources. Seven SLTs (15%) predicted that such learning needs will be ongoing and may even increase over time.

Two SLTs (5%) discussed the importance of engaging service and knowledge users in identifying priorities in relation to resources and information to ensure they are meaningful:

> *"... joint working with parents and teachers to develop resources that are meaningful to them"*

> Staff grade SLT, Primary Care & Disability Services

Thirty-eight SLTs answered Question 14. Of those, 20 SLTs (52%) discussed the need for accessible forms of information about DLD for parents such as infographics, plain English leaflets, podcasts, and short animations. The importance of resources developed in Ireland was noted as important to reach families as opposed to using videos and stories from elsewhere. Twelve SLTs (31%) discussed the continued need to increase public awareness of the condition. Seven SLTs (17%) discussed the inclusion of children with DLD, parents and families as stakeholders in future implementation efforts as an effective and powerful means of building capacity nationally to promote awareness of the condition.

Forty SLTs answered Question 15. Of those, 16 SLTs (40%) spoke of the need to engage the Department of Education in the use of CATALISE criteria for identifying and allocating resources, particularly in relation to access to language classes. Six SLTs (15%) discussed the need to provide more education

and training for teachers and educational psychologists about the new criteria. Three SLTs (17%) pointed to the need for collaborative leadership across health and education as a means of reducing barriers to adoption of changes in terminology and diagnostic criteria in relation to DLD:

> "... *schools and HSE having a better relationship, in my opinion is the greatest means of addressing barriers to moving forward*"

Staff grade SLT, Primary Care & Language Classes

Two SLTs (5%) discussed the importance of the role of managers within speech and language therapy services in promoting evidence-based pathways for DLD, and in advocating for funding for more specialist SLT roles. Without the support of clinical leaders, efforts to push for change rested with individual SLTs which were described as unsustainable. Two SLTs (5%) discussed the need to address the lack of data about services and supports available in Ireland which makes it difficult to measure changes in awareness about DLD and uptake of the CATALISE criteria.

4. Discussion

In Ireland, consistent with other English-speaking service contexts, terminological confusion, and a lack of consensus on diagnostic criteria has impacted negatively on equitable access to health services for children and young people with DLD (Bishop, 2014; Bishop et al., 2017; McGregor 2020). The IASLT has been actively engaged in leading on diffusion and dissemination efforts focused on preadoption and early use concerns since the publication of the CATALISE recommendations in 2017 (Bishop et al., 2016, 2017). The aim of this study was to explore the effectiveness of IASLT efforts from the perspective of a purposive sample of SLTs. Findings were to inform the planning and development of a future implementation strategy.

A diverse sample of SLTs from a range of service settings across Ireland, and with a wide range of years of professional experience participated in the survey. Whilst the majority of SLTs considered dissemination methods employed by the IASLT implementation group to be effective at the preadoption stage, several barriers to early use were identified.

A lack of professional confidence was identified at the level of the practitioner. This finding is surprising because most dissemination efforts so far have targeted SLT knowledge and understanding of the CATALISE recommendations. It was suggested that a move away from the certainty of cut-off scores to less prescriptive criteria more reliant on professional judgement may account for this lack of SLT confidence. It was also suggested that fewer children may be receiving a DLD diagnosis in some settings as a result of SLT lack of confidence in implementing the new recommendations.

The importance of practitioner self-efficacy in adopting innovations in the context of healthcare is well established in implementation research (Fleuren et al., 2004; Grol & Wensing, 2004; Länsisalmi et al., 2006). It is also well established that the complexity of innovations can negatively influence implementation with the potential for unintended consequences (Bloomrosen et al., 2011; Garg et al., 2016; Lipsitz, 2012). To overcome such practitioner level barriers, and to avoid the potential for unintended consequences, a central component of future implementation efforts must involve the use of evidence-based methods of improving knowledge and skills of SLTs in how to implement CATALISE.

At the service level, issues of compatibility were identified. Compatibility relates to how well proposed innovations integrate within existing healthcare workflows and systems. Assessment approaches based on the CATALISE recommendations necessitate flexible and responsive processes, and professional autonomy on the part of the SLT regarding how, where, and when such assessments are conducted. These requirements may be at odds with tightly prescribed assessment pathways that are commonly in operation across healthcare settings (Schrijvers et al., 2012). Such issues of fit are known to have a negative influence on implementation outcomes (Greenhalgh et al., 2004, Helfrich et al., 2007).

Such implementation barriers can be overcome where there is commitment, involvement, and accountability from service managers, known in the implementation science literature as engaged leadership (Damschroder et al., 2009; 2015). Engaged leadership has been shown to enable long term, contextual integration of complex practice change by fostering a learning culture (Meyer & Goes, 1988), by establishing audit and feedback mechanisms, and by creating learning collaboratives. Managers can also divert much needed resources to support implementation processes. The role of the SLT manager appears essential to progressing implementation of

the CATALISE recommendations so that the changes can become normalized into routine practice.

At a policy level, specific challenges appear to come into play for SLTs who work in schools in Ireland. The continued use of old terminology and cognitive referencing in education in determining access to SLT services in school was discussed as extremely problematic. Given that SLT services to schools in Ireland are undergoing considerable change with regards to meeting the needs of children with SLCN, it essential that a future implementation strategy involves the active engagement of stakeholders within education.

4.1. Limitations

The study aimed to explore the views of a purposively sampled group of SLTs in a diverse range of settings across Ireland to guide future implementation efforts. The findings cannot be said to represent the views of all SLTs working in DLD services in Ireland. The scope of the study is narrow, focusing solely on the views of SLTs. The authors acknowledge the importance of integrating these exploratory findings with the experiences of other stakeholders such as service users, policy makers and researchers to develop an agreed coherent national DLD implementation strategy.

A limitation of the study relates to the challenge of collecting sufficiently rich data in a survey format whilst keeping the time demands of the survey manageable from the perspective of busy practitioners. Based on feedback from the pilot, the number of open questions was reduced at the design phase, and more closed questions were included. Whilst reducing the time demands for SLTs, this also reduced the opportunity for them to contextualise their views further, which may have resulted in more of an in-depth understanding of the topic.

On the other hand, a strength of the online survey format is that qualitative data can be gathered where barriers to recruitment to attend focus groups or interviews exist. While data may be less detailed for the reasons outlined above, recruitment methods can be more effective. In this instance, the method enabled the successful recruitment of a diverse sample of SLTs across Ireland at a time when health services were significantly disrupted due to a global pandemic.

A further limitation of the study design is that researchers cannot always probe or clarify participant responses to online qualitative survey questions as they can when facilitating focus groups or interviews. As a result, data can be cryptic or vague to the researcher at the point of analysis, further exacerbated by the fact that anonymity means that findings cannot be member checked by participants. In an attempt to mitigate this issue, we presented findings to IASLT members of the DLD Special Interest Group as a means of gauging the extent to which the issues raised in the study resonated with their experiences.

5. Conclusions and recommendations

The findings of an online survey of a purposive sample of SLTs working across Ireland show the slow and effortful nature of implementing evidence-based changes in practice. Several barriers to implementation of the CATALISE recommendations at the level of the practitioner were identified, in addition to issues of complexity, and compatibility with current assessment processes and procedures. Misalignment across health and education policy was also identified as a barrier to adoption of the CATALISE recommendations.

Whilst it is important to acknowledge that efforts to support the uptake of the CATALISE recommendations so far have been effective, there is much work yet to be done to embed the use of the CATALISE recommendations into routine practice. Next steps will require coherent strategic planning involving multiple stakeholders to progress the full implementation of the CATALISE recommendations in Ireland.

Conflict of interest

We have no known conflict of interest to disclose.

Supplementary material

The supplementary material appendix is available in the electronic version of this article: https://dx.doi.org/10.3233/ACS-220011.

References

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

Bishop, D., & Leonard, L. (2014). *Speech and language impairments in children: Causes, characteristics, intervention and outcome*. Psychology press.

Bishop, D., Snowling, M. J., Thompson, P. A., & Greenhalgh, T. (2016). CATALISE: A multinational and multidisciplinary Delphi consensus study. Identifying language impairments in children. *PLoS ONE*, *11*(7), e0158753. https://doi.org/10.1371/journal.pone.0158753

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

Bishop, D., Snowling, M. J., Thompson, P., & Greenhalgh, T. (2017). Phase 2 of CATALISE: A multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *Journal of Child Psychology and Psychiatry*.

Bloomrosen, M., Starren, J., Lorenzi, N. M., Ash, J. S., Patel, V. L., & Shortliffe, E. H. (2011). Anticipating and addressing the unintended consequences of health IT and policy: A report from the AMIA 2009 Health Policy Meeting. *Journal of the American Medical Informatics Association*, *18*(1), 82-90. https://doi.org/10.1136/jamia.2010.007567

Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2021). The online survey as a qualitative research tool. *International Journal of Social Research Methodology*, *24*(6), 641-654. https://doi.org/10.1080/13645579.2020.1805550

Burns, K., Duffett, M., Kho, M., Meade, M., Adhikari, N., Sinuff, T., & Cook, D. (2008). A guide for the design and conduct of self-administered surveys of clinicians. *Canadian Medical Association Journal*, *179*(3), 245-252. https://doi.org/10.1503/cmaj.080372

Conti-Ramsden, G., Durkin, K., Nippold, M., & Fujiki, M. (2012). Postschool educational and employment experiences of young people with specific language impairment. *Language, Speech and Hearing Services in Schools*, *43*(4), 507-520. https://doi.org/10.1044/0161-1461(2012/11-0067

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implement Sci*, *4*(1), 50. https://doi.org/10.1186/1748-5908-4-50

Damschroder, L., Hall, C., Gillon, L., Reardon, C., Kelley, C., Sparks, J., & Lowery, J. (2015). The Consolidated Framework for Implementation Research (CFIR): Progress to date, tools and resources, and plans for the future. *Implementation Science*, *10*(Suppl 1), A12. https://doi.org/10.1186/1748-5908-10-S1-A12

Eadie, P., Conway, L., Hallenstein, B., Mensah, F., McKean, C., & Reilly, S. (2018). Quality of life in children with developmental language disorder. *International Journal of Language and Communication Disorders*, *53*(4), 799-810. https://doi.org/10.1111/1460-6984.12385

Elbro, C., Dalby, M., & Maarbjerg, S. (2011). Language-learning impairments: A 30-year follow-up of language-impaired children with and without psychiatric, neurological and cognitive difficulties. *International Journal of Language & Communication Disorders*, *46*(4), 437-448. https://doi.org/10.1111/j.1460-6984.2011.00004.x

Fleuren, M., Wiefferink, K., & Paulussen, T. (2004). Determinants of innovation within health care organizations: Literature review and Delphi study. *International Journal for Quality in Health Care*, *16*(2), 107-123. https://doi.org/10.1093/intqhc/mzh030

Gaglio, B., Shoup, J. A., & Glasgow, R. E. (2013). The RE-AIM framework: A systematic review of use over time. *American Journal of Public Health*, *103*(6), e38-e46. https://doi.org/10.2105/ajph.2013.301299

Gallagher, A. L., Galvin, R., Robinson, K., Murphy, C.-A., Conway, P. F., & Perry, A. (2020). The characteristics, life circumstances 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), e0229599. https://doi.org/10.1371/journal.pone.0229599

Garg, A., Boynton-Jarrett, R., & Dworkin, P. H. (2016). Avoiding the unintended consequences of screening for social determinants of health. *JAMA*, *316*(8), 813-814. https://doi.org/10.1001/jama.2016.9282

Gibbons, M., Coughlan, K., & Gallagher, A. L. (2022). Hidden in plain sight: A qualitative exploration of teachers and children's perspectives. Advances in Communication and Swallowing. https://doi.org/10.3233/ACS-220010

Glasgow, R. E., Harden, S. M., Gaglio, B., Rabin, B., Smith, M. L., Porter, G. C., Ory, M. G., & Estabrooks, P. A. (2019). RE-AIM planning and evaluation framework: Adapting to new science and practice with a 20-year review. *Frontiers in public health*, *7*, 64.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *Milbank Q*, *82*. https://doi.org/10.1111/j.0887-378X.2004.00325.x

Grol, R., & Wensing, M. (2004). What drives change? Barriers to and incentives for achieving evidence-based practice. *Medical Journal of Australia*, *180*, S57-S60. https://doi.org/10.5694/j.1326-5377.2004.tb05948.x

Hall, G.E. & Hord (1987). *Change in schools*. Albany: State University of New York Press. 1

Helfrich, C.D., Weiner, B.J., McKinney, M.M., & Minasian, L. (2007). Determinants of implementation effectiveness: Adapting a framework for complex innovations. *Medical Care Research and Review*, *64*(3), 279-303. https://doi.org:10.1177/1077558707299887

Irish Association of Speech and Language Therapists. (2017). *Supporting children with developmental language disorder in ireland: position paper and guidance document*. http://www.iaslt.ie/documents/public-information/Childhood%20Speech%20and%20Language/DLD%20Position%20Paper%20FINAL%2023MAY2017.pdf

Khoboli, B., & O'Toole, J.M. (2012). The concerns-based adoption model: Teachers' participation in action research. *Systemic Practice and Action Research*, *25*(2), 137-148. https://doi.org/10.1007/s11213-011-9214-8

Länsisalmi, H., Kivimäki, M., Aalto, P., & Ruoranen, R. (2006). Innovation in healthcare: A systematic review of recent research. *Nursing Science Quarterly*, *19*(1), 66-72. https://doi.org/10.1177/0894318405284129

Law, J., Rush, R., Schoon, I., & Parsons, S. (2009). Modeling developmental language difficulties from school entry into adulthood: Literacy, mental health, and employment outcomes. *Journal of Speech, Language, and Hearing Research*, *52*(6), 1401-1416. https://doi.org/10.1044/1092-4388(2009/08-0142)

Lipsitz, L.A. (2012). Understanding health care as a complex system: The foundation for unintended consequences. *JAMA*, *308*(3), 243-244. https://doi.org/10.1001%2Fjama.2012.7551

Lynch, H., Ring, E., Boyle, B., Moore, A., O'Toole, C., O'Sullivan, L., Brophy, T., Frizelle, P., Horgan, D., & O'Sullivan, D. (2020). *Evaluation of in-school and early years therapy support demonstration project*. (28). https://ncse.ie/wp-content/uploads/2020/11/Demo-project-evaluation-fInal-for-web-upload.pdf

McGregor, K.K. (2020). How we fail children with developmental language disorder. *Language, Speech, and Hearing Services in Schools*, *51*(4), 981-992. https://doi.org/10.1044/2020_LSHSS-20-00003

McGregor, K. K., Goffman, L., Van Horne, A. O., Hogan, T. P., & Finestack, L. H. (2020). Developmental language disorder: Applications for advocacy, research, and clinical service. *Perspectives of the ASHA Special Interest Groups*, *5*(1), 38-46. https://doi.org/10.1044/2019_PERSP-19-00083

McKean Cristina, Reilly, S., Bavin, E. L., Bretherton, L., Cini, E., Conway, L., Cook, F., Eadie, P., Prior, M., & Wake, M. (2017). Language outcomes at 7 years: Early predictors and co-occurring difficulties. *Pediatrics*, *139*(3), e20161684. https://doi.org/10.1542/peds.2016-1684

Meyer, A. D. & Goes, J. B. (1988). Organizational assimilation of innovations: A multilevel contextual analysis. *Academy of Management Journal*, 31, 897-923. https://psycnet.apa.org/doi/10.2307/256344

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

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for reporting qualitative research: A synthesis of recommendations. *Academic Medicine*, *89*(9), 1245-1251. https://doi.org/10.1097/acm.0000000000000388

Paul, R. (2020). Language disorders. In *Handbook of clinical neurology* (Vol. 174, pp. 21-35). Elsevier.

Plug, M. B., van Wijngaarden, V., de Wilde, H., van Binsbergen, E., Stegeman, I., van den Boogaard, M.-J. H., & Smit, A. L. (2021). Clinical characteristics and genetic etiology of children with developmental language disorder. *Frontiers in Pediatrics*, *9*. https://doi.org/10.3389/fped.2021.651995

Quigley, D., Smith, M. & Hayes, N. (2022) 'What's the magic word?': Mapping oral language interventions implemented in prevention and early intervention programmes, Irish *Educational Studies*, https://doi.org/10.1080/03323315.2022.2088592

Raghavan, R., Camarata, S., White, K., Barbaresi, W., Parish, S., & Krahn, G. (2018). Population health in pediatric speech and language disorders: Available data sources and a research agenda for the field. *Journal of Speech, Language, and Hearing Research*, *61*(5), 1279-1291. https://doi.org/10.1044/2018_jslhr-l-16-0459

Reilly, S., Wake, M., Bavin, E. L., Prior, M., Williams, J., Bretherton, L., Eadie, P., Barrett, Y., & Ukoumunne, O. C. (2007). Predicting language at 2 years of age: A prospective community study. *Pediatrics*, *120*(6), e1441-1449. https://doi.org/10.1542/peds.2007-0045

Royal College of Physicians. (2007). *Guidelines on the practice of ethics committees in medical research with human participants.* https://shop.rcplondon.ac.uk/products/guidelines-on-the-practice-of-ethics-committees-in-medical-research-with-human-participants?variant=6364998469

Schrijvers, G., Van Hoorn, A. & Huiskes, N. (2012). The care pathway: Concepts and theories: an introduction. *International Journal of Integrated* Care, 12, e192. https://doi.org/10.5334/ijic.812

Suri, H. (2011). Purposeful sampling in qualitative research synthesis. *Qualitative Research Journal*, *11*(2), 63-75. https://doi.org/10.3316/QRJ1102063

Tomas, E., & Vissers, C. (2019). Behind the scenes of developmental language disorder: Time to call neuropsychology back on stage. *Frontiers in Human Neuroscience*, *12*. https://doi.org/10.3389/fnhum.2018.00517

Tomblin, J. B., Smith, E., & Zhang, X. (1997). Epidemiology of specific language impairment: Prenatal and perinatal risk factors. *Journal of Communication Disorders*, *30*(4), 325-344. https://doi.org/10.1016/s0021-9924(97)00015-4