Department for Education

Supporting stammering, speech, and language needs in the early years: a rapid evidence review with case studies on working together

Findings report

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Introduction

This rapid review explores how early years practitioners and settings can better support children with stammering, speech and language needs, and promote strong communication development across universal and targeted support levels. Three core areas were examined: (1) identification and assessment; (2) support and intervention; and (3) working together.

Methods

Three work packages were completed using recognised scoping, rapid, and systematic review methods to identify, evaluate, and synthesise the relevant evidence.

Identification and assessment: Evidence from literature, databases, and experts was evaluated using recognised diagnostic and psychometric benchmarks. Findings informed best-practice guidance for tools to support universal, targeted and specialist provision.

Support and intervention: Studies and reviews were analysed using frameworks such as TIDieR and EEF standards to identify effective interventions. Evidence included universal, targeted, and some specialist-level strategies.

Working together: Literature and five case studies (across regions) were synthesised using implementation frameworks (e.g. COM-B (Capability, Opportunity, Motivation and Behaviour), TDF (Theoretical Domains Framework) to identify effective collaboration approaches.

Findings

No validated or reliable measures were identified in this review that are currently available for use by early years practitioners to assist in the identification of stammering. Research suggests early years practitioners and parents can reliably identify stammering, though variability in stammering between home and school means discussion with parents and caregivers is vital and any parental concerns about stammering taken seriously. The WellComm tool provides helpful guidance as to when to refer to a Speech and Language Therapist (SLT).

Speech needs can be identified by assessing how intelligible the child is to others; whether they are producing age-appropriate sounds; and whether their speech difficulties are affecting confidence or participation. If a child presents with a Speech Sound Disorder (SSD), they must receive an individualised support programme, planned, and

delivered, or overseen, by a SLT. Tools such as the Intelligibility in Context Scale (ICS), SpeechLink, Speech Participation and Activity Assessment of Children (SPAA-C) and speech milestones are available, but all require additional validation and psychometric evaluation for the UK and early years context. In addition, two assessments of phonological awareness, PIPA (Preschool and Primary Inventory of Phonological Awareness) and NAPA (Newcastle Assessment of Phonological Awareness), can help determine whether a child may benefit from targeted phonological awareness interventions.

For identification of language needs, fourteen tools with reported psychometric properties were found, with a subset reporting the best psychometric properties include the British Picture Vocabulary Scales, the Infant/Reception Language Link, Language Screen and the Sure Start Language Measure. No single tool fully captures all needs or ages making multi-tool approaches essential. The WellComm supports collaborative practice and covers a wide age-range, but its psychometric properties require further evaluation. Input from SLTs is an essential part of settings' identification of language needs.

Our review found limited evidence for interventions addressing stammering at universal or targeted levels, though strategies drawn from specialist literature may help reduce the risk of persisting stammering and/or reduce negative consequences. For children with a SSD, two targeted approaches, Phonological Awareness intervention and Recasting, are supported by moderate and good evidence, respectively. Additional techniques such as auditory bombardment and phonological contrast activities may also be beneficial. For language, sixteen studies on language interventions were identified, though the overall quality was variable. Six programmes, including the Nuffield Early Language Intervention (NELI), NELI Pre-school, Developing Talkers, Educator-Implemented Storybook Vocabulary Intervention, Happy Talk, and Talk Boost, showed good evidence of effectiveness. Universal strategies in addition to targeted support is essential. Effective approaches consistently emphasised creating language-rich environments through methods such as responsive interaction, dialogic reading, explicit instruction, modelling, and repetition.

In terms of working together, collaborative, tiered models of speech and language support, developed and delivered in partnership across the children's workforce, provide the most efficient and effective means of delivering universal, targeted, and specialist support equitably. All models place children and their parents or caregivers at the centre, aiming to ensure timely, high-quality support that improves long-term outcomes. The review identified clear benefits of integrated approaches for practitioners, families, and children. Essential features of successful partnership working include strategic leadership (involving senior SLTs, school and early years leaders, and local authority stakeholders), open communication, cross-professional networking, and hands-on collaboration. These models promote shared skills and knowledge, boost practitioner confidence, and

accuracy in identification, and enable more effective use of specialist resources. For children, they lead to improved speech and language outcomes and earlier support. For parents and caregivers, benefits include increased confidence in supporting their child, stronger relationships, and better engagement with wider services.

Considerations

Effective implementation of speech and language support in early years settings relies on holistic, well-trained identification processes and tiered interventions. Assessment tools alone are insufficient; practitioners require training to interpret results and consider contextual factors, especially for bilingual children. Universal provision should emphasise inclusive communication environments and high-quality, speech and language enriching interactions, while targeted support can address speech, language, and stammering needs more directly.

Children with SSD, or significant language difficulties should be referred to Speech and Language Therapy, with additional strategies used to support communication in the meantime and alongside specialist provision. Children who stammer should be referred to Speech and Language Therapy where the family are concerned, and/or it is affecting the child's confidence or participation socially and educationally.

Key targeted strategies for SSD include phonological awareness interventions, recasting, auditory bombardment. For stammering, creating stammering-accepting environments is key. For both SSD and stammering practitioners should avoid corrective feedback and ensure all forms of communication are valued.

For language, a small number of evidence-based targeted interventions are available. Settings should choose those which are evidence-based, and contextually appropriate, and must ensure they are delivered accurately. For bilingual children, maintaining support in their home language strengthens cultural and cognitive development while promoting connection to their wider family and community.

Collaborative models developed locally between early years settings, SLTs, parents, Health Visitors, and other professionals are essential to meet diverse community needs and use resources effectively. Local leaders across early years, health, and social care should take responsibility for maintaining partnerships, setting practice standards, and driving continuous improvement. Regular review of children's progress and provision data enables responsive support and helps evaluate system-level effectiveness.

Effective implementation of evidence-based speech and language support relies on accessible, ongoing training. Designating a speech and language lead in each early years setting enables coordination across identification, support, and collaboration. These leads can cascade expertise, liaise with SLTs, support audits, and guide

intervention delivery. All early years practitioners benefit from training in speech and language development, stammering, assessment interpretation, speech, and language enriching universal strategies, and partnering with families. Leads require more specialised training in intervention selection, coaching, and quality improvement.

Conclusions

While some effective tools and interventions exist, key gaps remain, particularly in high-quality identification tools and universal or targeted interventions for speech and stammering.

Measuring the impact of stammering, speech and language needs on children's educational and social participation remains a challenge; This impact is a key consideration to inform specialist referral and so the lack of suitable tools for early years practitioners makes this a research priority. Similarly, the limited availability of high-quality, scalable universal and targeted interventions, especially for speech and stammering, suggests an urgent need for further development and evaluation. Particular attention should be paid to the tailoring required for successful implementation across early years settings. In addition, the effects of environmental and communicative strategies on communicative participation and wellbeing need further study.

Collaborative models across early years services should be evaluated at system level for reach, impact, and cost-effectiveness. Finally, bilingual children are underrepresented in current tools and interventions, making inclusive development for this group a critical priority.

Introduction

Early speech and language development sets the stage for children's educational progress, social relationship development, and mental health and well-being (McKean et al., 2017b, Eadie et al., 2018, Le et al., 2021, Westrupp et al., 2020, Dubois et al., 2020). As such, it is now widely recognised as a key driver of children's health and life chances across the life course (Law et al., 2017b, Law et al., 2017a, Schoon et al., 2009, Schoon et al., 2010, Law et al., 2009, Briley et al., 2021, McAllister et al., 2012).

Many children do not develop robust speech and language skills and need additional support. International studies demonstrate that, on average, this represents approximately 7-14% of preschool children (Law et al., 2017b). However, the gradient which exists in language abilities associated with social disadvantage means these difficulties are distributed unfairly (Reilly and McKean, 2023, Reilly et al., 2014b, McKean et al., 2018), with prevalence being much higher in socially disadvantaged populations, rising to 40% of children in some settings (Law et al., 2011).

Not only is it vital to support children with difficulties or those at risk of poor speech or language development, but due to the crucial role of speech and language in literacy, numeracy, self-expression, mental health, and well-being, the provision of language-enriching early years experiences is essential to ensure all children can reach their potential.

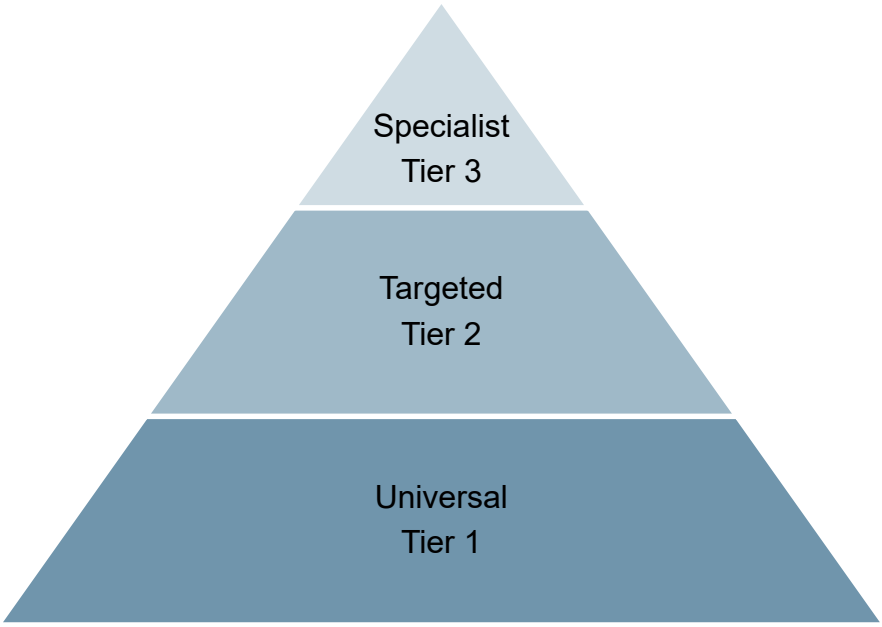
The early years (0-5 years) represent a crucial developmental window within which to make a difference in children's language development. Support in the preschool period capitalises on the rapid brain growth occurring at this stage to bring larger benefits than later interventions. This results in higher 'returns' in the longer term through developmental cascades where early acquired skills (e.g., vocabulary knowledge, phonological awareness) enable later skills (e.g., literacy) to be more readily acquired (Shonkoff, 2011).

Since the COVID pandemic, the need to find ways to ensure that all children develop robust language skills has become more acute. The changes to children's early life experiences during the pandemic have increased the prevalence and inequality of needs (Erbay and Tarman, 2022, Zuniga-Montanez et al., 2005). This has happened alongside the departure of experienced practitioners from speech and language therapy and early years professions (Early years Alliance, 2021, RCSLT, 2022), and severe and sustained cuts in local government spending on early years services (Action for children, 2021). These unprecedented pressures on families, early years services and SLTs have exacerbated the inequalities in language skills between disadvantaged children and their more advantaged peers (Tracey et al., 2022).

It has always been essential that the development of robust speech and language skills is a shared responsibility across the children's workforce. Speech and language learning occurs in all spheres of a child's daily life, from infancy to adulthood. To support language development for all children, and ameliorate the problems of those with language difficulties, any support must be able to cut-across service, contextual and age-related boundaries. Practitioners working in the early years must have the knowledge, skills, and capacity to play their part (McKean et al., 2019, Law et al., 2022). This has become yet more important in the current context of unprecedented needs and a depleted workforce.

Tiered models of speech and language support, developed and delivered collaboratively, involving the whole children's workforce working together, are designed to enable Universal, equitable reach and the most efficient and effective deployment of resources, skills and knowledge (Reilly and McKean, 2023, McKean and Reilly, 2023, Gascoigne, 2006, Gascoigne, 2021) (Figure 1).

Figure 1. Tiered model of speech and language support



Professionals collaborate to provide universal, targeted and specialist support:

- Specialist support refers to approaches used for children with identified needs requiring individualised programmes of support delivered and/or overseen by SLTs.
- Targeted support approaches are used for children who are stammering, are at risk of speech and language needs, and/or are not meeting age-related expectations in speech or language

    - who are not meeting criteria for SLT referral and/or
    - where the SLT agrees the Targeted offer is appropriate to meet the child's current needs and/or constitutes a period of dynamic assessment.
- Universal support includes approaches used across a whole setting or population that promote robust speech, language, and communication development for all children. This includes the identification of children with and at risk of stammering and/or speech and language needs.

This rapid review was commissioned by the Department for Education and was completed between February and July 2024. The aim is to identify the best current evidence to inform the provision of universal and targeted support for children with speech, language, and communication needs (SLCN) by early years practitioners.

The review focuses on identification, support, or interventions, and working collaboratively for children with SLCN in the early years:

- Stammering (also known as stuttering) is characterised by whole and part-word repetitions, prolongations and blocking of sounds, and may be accompanied by physical tension, additional movements, and/or avoidance of words or speaking.
- Speech refers to the production and use of speech sounds including consonants (e.g., p, b, m, s) and vowels (e.g., ah, ee, oo) to convey a message in a given language.
- Language is the understanding and use of words, sentences, and grammatical markers (e.g. -ing; -ed) to share meaning.

The review does not address the needs of children with autism and/or pragmatic or social communication needs. This was both because a parallel review for autism was planned where we anticipated relevant research for communication needs would be identified, and to ensure the scope of the review was possible with the available resources and time frame.

The review comprised three work packages to identify evidence relevant to the non-specialist early years workforce with respect to:

1. Identification and assessment tools
2. Interventions and support
3. Working together

This report summarises the findings and conclusions that can be drawn from each work package's evidence review. A Supplementary Evidence Report is also available and published by Newcastle University, which provides additional detailed results, data extraction tables, and analyses.

A rapid review method provides an overview and synthesis of the available evidence of relevance to each work package. The nature of available evidence for each work package varies. For example, Work Package 1: Identification and assessment, includes assessment manuals and peer-reviewed papers; Work Package 2: Intervention and support, includes peer-reviewed papers; and finally Work Package 3: Working together, includes peer-reviewed papers, grey literature, and qualitative case studies. Given this, differing methods were used to identify, appraise and synthesise the evidence for each work package.

Full methods, including the inclusion and exclusion criteria, search terms and quality assessment appraisal methods, are outlined in a separate Methodology report. Given the nature of a rapid review, the methodology does not guarantee a fully comprehensive identification of all available evidence. However, we can be confident that the review includes the large majority of sources of relevant evidence.

Work package 1: Identification and assessment

Introduction

Stammering, speech, and language needs in the early years vary, with differing prevalence, natural history, consequences, and presentation. These differences bring different implications for early identification.

Stammering

Stammering (also known as stuttering or dysfluency) is characterised by whole and part-word repetitions, prolongations and blocking of sounds. Internationally, approximately 5-8% of children will stammer for a period of time, mostly starting between the ages of 2 years and 6 months and 6 years old (Yairi and Ambrose, 2013). Early years practitioners are likely to be the first professionals to notice stammering or to be approached by parents or caregivers who are concerned about their child's fluency.

As many as 80% of preschool children who start stammering will stop (Yairi and Ambrose, 2013), but it is not possible to identify which children will continue to stammer into later childhood and adulthood. Whether the stammer resolves or persists, it can have considerable impact on a child's ability and confidence to communicate while it is present. Interactions with their peers and emotional well-being can be affected (Langevin et al., 2010). There may also be considerable impact on the child's parents and caregivers, with parents reporting high levels of anxiety, feelings of guilt and hopelessness, as well as a loss of confidence in their parenting skills (Langevin et al., 2010). For those who continue to stammer into teen and adult years, there can be significant mental health consequences and impacts on educational and professional attainment (McAllister et al., 2012, Briley et al., 2021).

Speech

'Speech' refers to the production and use of speech sounds to convey a message in a given language. Some children find producing and using speech sounds more difficult than their peers. This may be seen with or without co-occurring difficulties in receptive or expressive language, or other areas of communication. Prevalence estimates vary, but a large and robust study from Australia found 3.4% of four-year-old children have a clinical difficulty with speech sounds (Eadie et al., 2015), equating to roughly one child in every thirty children in an early years setting. The most commonly used formal term for a clinically significant difficulty in this domain is a Speech Sound Disorder (SSD).

As young children develop their speech they make frequent errors, often making them difficult to understand, especially for unfamiliar listeners. Data on how easy children are

to understand, or how intelligible they are, give us some guidelines to follow about whether children are developing their speech typically. The most recent data from a sizable sample of American children (Hustad et al., 2020) show that an unfamiliar listener with no context will typically understand about half of what a child says by their third birthday. However, by the time they are 4 years old they should be mostly intelligible to others (Hustad et al., 2020).

Pre-school children with a SSD frequently have co-occurring difficulties with phonological awareness (speech sound awareness). Phonological awareness refers to children's conscious awareness of and ability to play with the sounds that make up spoken words. Tasks that tap into phonological awareness include clapping along to the syllables in multisyllabic words, identifying and making up rhymes, and identifying the first or last sound in words. Three-quarters of children with a SSD find these tasks more challenging than their peers (Broomfield and Dodd, 2004). Difficulties with phonological awareness also have significant implications for children's literacy and vocabulary development. Phonological awareness will be considered in this report alongside speech.

Language

Language is the understanding and use of words, sentences, and grammatical markers to share meaning. Language can be thought of as having two modalities: receptive and expressive. Receptive language is the process of understanding what is said, sometimes also called comprehension; while expressive language is the process of using language, sometimes called language production.

Key components of early language are:

- Vocabulary: the use and understanding of single words.
- Sentence structures: the use and understanding of word and phrase combinations to convey differing meanings.
- Grammatical markers: the use and understanding of grammatical markers such as '-ing', '-ed', and plural 's' to convey differing meanings.
- Discourse structures: the use and understanding of sequences of sentences for differing purposes, for example to tell simple narratives.

In the early years, the prevalence of language difficulties is estimated at 7-14%, varying slightly with age and being more prevalent in socially disadvantaged populations (Law et al., 2017b). Before the age of 4, there is a great deal of volatility in children's language development (Law et al., 2017b). For example, approximately 30% of children with low language at 2 years old go on to have persistent language difficulties, while half of children with language difficulties at 4 years were typical talkers at 2 years old (Reilly et al., 2014a). Hence, children can grow out of and into language difficulties over the pre-

school years. Once children reach 4 years old, however, their relative language abilities become more stable. If a child reaches 4 years old with language difficulties, these are likely to persist and require specialist support (McKean et al., 2017c).

Early language interventions capitalise on the period of greatest brain growth, realising larger benefits than later interventions, and creating a developmental cascade where early acquired skills (e.g., vocabulary knowledge) enable later skills (e.g., literacy) to be more readily acquired (Shonkoff, 2011). Children's response to early intervention also provides diagnostic and prognostic information that can be used to efficiently direct those who require them to targeted and specialist services. Importantly, the effects of environmental influences on children's relative language abilities start early (Fernald et al., 2013, Hoff, 2003) and may account for a large proportion of their effects by the time a child reaches 4 years old. If we are to leverage these factors for preventative interventions we need to do so early in development (Bornstein et al., 2016, McKean et al., 2017b, McKean et al., 2015). Waiting until the child enters school potentially misses an important opportunity to provide preventative interventions that harness the social determinants of language development.

Assessment tools must, therefore, be embedded within a whole systems approach, which provides a continuum of support across a continuum of need and monitors children's development to enable children to move up and down levels of support as their needs change over time (Law et al., 2017b).

The purpose of assessment tools

Tools used to assess a child's speech and language have a number of purposes: to identify children who are likely to have needs and therefore may require onward referral for full assessment and/or targeted support; to track progress over time; and to identify a child's strengths and needs across domains of speech and language to inform where and how to provide support. These assessments are not 'diagnostic.' Diagnosis can only be determined by holistic assessment and by the relevant specialist practitioner (a Speech and Language Therapist in the case of the needs described in this report). There is a temptation to use assessments as 'screens': assessing whole classes at a single time point and using cut-points in scores and Red-Amber Green or 'RAG ratings' to determine levels of support. While assessments such as these are useful, all such tools are only ever an indicator of potential need and should be interpreted together with the educator's holistic knowledge of the child together with monitoring over time. This is especially important as the child's response to additional support can be highly informative, and because children who appear to be progressing well at an earlier point can present with problems later if they do not progress at the expected rate and so fall behind their peers (Reilly and McKean, 2023).

Aims

Work package 1: Identification and assessment aims to identify and compare the effectiveness of different measures and tools for identifying potential stammering, speech, and language needs by answering the following research questions:

1. Which measurement tools are available to Early years Practitioners to identify children's stammering, speech, and language needs across the early years?
2. What are the performance parameters of these measurement tools (e.g. reliability/validity/specificity)?
3. Which measurement tools are most appropriate for use by staff in early years settings? What are the advantages and disadvantages of the different tools?
4. How can these tools be used to guide decisions regarding the provision of universal, targeted or specialist support?
5. Which profiles of need are likely to require immediate specialist referral?

Methods

We applied recognised search, and data extraction strategies and methods of data extraction, summary and appraisal used in 'desk-based' and/or scoping reviews (Grant and Booth, 2009). Full methods, including the search strategy, inclusion criteria, extraction, and appraisal of data are reported in the Methodology Report.

Once the tools were identified, we sourced publications to provide the necessary details to summarise the characteristics of each tool and appraise their psychometric properties. To do this, we first identified manuals and primary papers which describe the development and psychometric properties of the tools. We then conducted searches in SCOPUS and EBSCO for papers published after the date of the manual publication which include the name of the tool in the title or abstract to check if further evaluation had been conducted. Additionally, we checked with the authors whether further evaluations had been published.

To assess the performance parameters of the identified measurement tools, the psychometric properties and quality criteria were considered in the evaluation of tool quality. The psychometric properties considered are drawn and adapted from Asunta et al. (2019).

When evaluating the tools, the following properties were considered:

- Normative sample: Consideration of the sample used to develop, standardise, and create norms for the tool in terms of representativeness of the UK population and size. Tools can provide biased estimates of development if they do not include children from a wide demographic spectrum which mirrors the UK population. For example, they may over or under-estimate how children perform at a given age. We also consider the size of the sample. The larger the sample the more confident we can be that the norms in the tool are reliable.
- Usability: A qualitative judgement regarding how feasible, practical, and easy a tool is for practitioners to use.
- Accuracy in identifying needs: Measured using sensitivity and specificity metrics which describe how accurate the test is in identifying children with and without difficulties in the domain that is assessed.
- Validity: The degree to which an assessment tool measures the construct it is designed to measure (i.e. vocabulary, grammar, or speech). This can provide confidence that it really is giving insights into a child's stammering, speech, and language needs. There are multiple types of validity. We consider:
    - Concurrent validity: degree to which a measure aligns with well-established measures of the same construct. If a newer assessment for stammering

produces results that closely align with those from a trusted, widely used assessment, we can be more confident in its accuracy.

  - Discriminant validity: the ability to differentiate between groups with known differences. A good test should be able to detect differences where they genuinely exist. For example, it should show distinctions between younger children (who might have more limited vocabulary) and older children (with more developed vocabulary).
  - Face validity: the degree to which practitioners who use it trust that it provides a fair measure of the construct. Important for practical acceptance; if practitioners feel the tool is intuitive and aligns with their understanding of stammering or language issues, they are more likely to trust and use it.
  - Cross-cultural validity: consideration as to whether tools have been evaluated in non-monolingual or non-English speaking groups. Many speech and language assessments are developed for English-speaking, monolingual populations. Without considering cross-cultural validity, these tools might not work well for children from diverse linguistic backgrounds, leading to inaccurate or biased results.

- Reliability: Reliability refers to how consistently a measurement tool produces results, the consistency and precision of the measure. Lack of reliability introduces error into the measurement process reducing the confidence we can have that it is providing a true representation of the child's abilities. We consider:
  - Internal consistency: how well the different items within the measurement tool measure the same underlying construct.
  - Test-retest reliability: whether the tool would yield the same results if repeated multiple times. This evaluates whether the same tool gives consistent results when used with the same person at different times, assuming their abilities have not changed. A test should produce similar results if administered to the same child on different days (under similar conditions). If results vary widely, the test may be unreliable.
  - Inter-rater reliability: whether the test would yield the same results if used by two different administrators. If their ratings are similar, the test has high inter-rater reliability.
- Modern psychometrics: classical test theory has been challenged in recent years with respect to potential inaccuracies (Cappelleri et al., 2014). In addition to the 'classic' psychometric properties described, we also note if tool development included more modern methods of development, including Rasch analysis and Item response theory. These approaches enable higher confidence in a tool's ability to detect individual differences between children and within individual children over time (Jabrayilov et al., 2016).

Although some metrics and properties are rarely clearly reported (such as usability, cross-cultural validity), we included them in the review to point out the need for further research to examine these factors. We also consider aspects which may not be apparent to users of the tools (e.g. normative sample, reliability) to support practitioners to be critical consumers of the available tools.

The reporting quality is categorised as: low quality reporting; moderate quality reporting; good to excellent quality reporting; reported but unclear; reported but quality rating not applicable i.e. quality criteria do not exist or are inappropriate; and not reported.

Findings

Twenty-two tools were identified which are designed to identify and assess stammering, speech, and/or language needs. Tools have been described and summarised in respect to their psychometric properties (where available) and their recommended use for stammering, speech, and language in turn. We describe which measures are available; their psychometric properties; their usability; application to bilingual children; and how the measures inform the determination of the level of support required (universal, targeted, or specialist).

Stammering

No validated or reliable measures were identified in this review that are currently available for use by early years practitioners to assist in the identification of stammering, evaluation of its severity or impact, or to determine whether interventions or referral are appropriate. However, the WellComm speech and language toolkit provides a clear and helpful description of the overt speech characteristics of stammering, as well as guidance on when to refer to an SLT.

Observations of children's development are a core competence of early year practitioner practice. As such, it would be expected that practitioners would identify the presence of stammering through observations in everyday interactions with the child. There is evidence that early years practitioners can reliably identify whether a child's speech is stammered, stuttered or fluent (Einarsdóttir and Ingham, 2008) as well as parents and caregivers (Einarsdóttir and Ingham, 2009).

Accuracy and certainty in identifying stammering can be increased through training (Hearne et al., 2021) and through conversations with parents and caregivers. There is evidence that providing teachers with a fact sheet about stammering and a 20-minute video designed for the educational workforce increases awareness (Hearne et al., 2021, Berquez et al., 2011). Conversations with parents and caregivers relies on the nature of

the practitioners' partnerships and relationships with parents or caregivers. Strategies to enable such partnerships are described in Work Package 3: Working together.

Importantly, children's stammering can be variable and may not appear in all speaking situations, so observations by parents or caregivers and early years staff may not always align. Therefore, if practitioners observe signs of stammering, encouraging discussions with parents and caregivers would allow their views to be understood. It is important for practitioners to take parental concerns about stammering seriously, even if they have not observed it themselves.

Psychometric properties of stammering tools

The WellComm speech and language toolkit has not been evaluated to determine whether the use of its stammering guidelines result in appropriate identification or decisions regarding onward referral. Critical evaluation with reference to the evidence suggests that the WellComm stammering guidance is generally evidence-based and consistent with expert recommendations. However, training for early years practitioners would be essential for optimal implementation of the WellComm guidance.

Usability of stammering tools

The usability of WellComm, which includes guidance on identifying stammering, has been evaluated through educator surveys (Dysart and Code, 2023). Practitioners comment on the use of the screening tool and the "Big Book of Ideas". However, this review found no published evidence or evaluations that specifically address the usability of the stammering guidance.

Identifying and assessing stammering needs in bilingual children

The current understanding of stammering and bilingualism is limited, and evidence suggests that identifying stammering in bilingual populations may be more complex (Choo et al., 2020). Typically, children will stammer in both languages, but may stammer more, or less, in one or the other. Stammering may be over-diagnosed in bilingual children (Byrd et al., 2015), so if stammering is suspected, discussion with parents or caregivers and an SLT will be necessary to understand whether the behaviours are stammering or more language based. For example, hesitancies and repetitions may be due to difficulty finding the right words or forming correct sentence structures rather than stammering itself.

Using the stammering measures to determine support levels

Universal

An essential component of good universal practice is the ability to identify children who stammer and decide when to refer them for specialist support.

For universal support, early years practitioners should focus on creating an environment where all forms of communication are valued, differences are accepted and celebrated, and strategies are used to promote all children's success in sharing and understanding ideas (Hearne et al. 2021).

Targeted

In terms of targeted support, following assessment by a SLT, early years practitioners may be asked to provide information about a child's behaviour and communication. This might include information about how the child is communicating with peers and adults, the stammering behaviours, and how the child and others are responding or reacting to the stammering. The early years workforce has a crucial role in noticing whether stammering is having an impact on a child's confidence and ability to communicate, as well as their acceptance in their peer group, signs of exclusion or stigma.

Specialist

Children who stammer should be referred to specialist support through a SLT for in-depth assessment and individualised therapy if parents or caregivers have concerns about their stammering, or if their child is responding negatively to their speech. The SLT may then conduct an assessment to identify the factors that are significant for that child and make recommendations based on those (Clark et al., 2017, Brundage et al., 2021). Subsequently, interventions for stammering must be delivered by an SLT. Following guidance from the SLT, early years practitioners will be involved with using strategies to support the child to communicate successfully in the classroom and to reduce the potential risks of negative consequences associated with stammering (Hearne et al., Brundage et al., 2021).

Speech

Assessment of the speech sounds that children use can be approached in three ways. Firstly, by measuring intelligibility, which is how easily the child can be understood. Secondly, by comparing the sounds the child can and cannot say to typical developmental milestones; and thirdly, through specialist assessment of the sounds children use, the errors they make and why they make those errors. Only the first two approaches are available to early years practitioners; specialist assessment must be completed by a SLT. Two further areas also relevant to the assessment of speech sounds are phonological awareness and communicative participation. Phonological awareness, a foundation skill for literacy for all children, falls firmly within the remit of early years practitioners. Although phonological awareness is both a speech and a language skill, supporting children's phonological awareness is relevant to supporting children with speech difficulties. Based on this, it has been considered within the speech section of this review.

It is also important to understand if and how a child's speech errors may be affecting the child's communicative participation at school, at home and with friends. Communicative participation difficulties could influence the decision for specialist referral if the child has only mild difficulties, but these difficulties are affecting their daily life.

These approaches to assessment of the speech sounds that children use are discussed in turn. Five tools that can be used for speech and phonological awareness, along with the age range they cover, and their purpose are summarised in Table 1. Some tools applicable to the language domain also include some speech and phonological awareness items (Ages and Stages Questionnaire (ASQ); Early Language Identification Measure and Intervention (ELIM-I); Every Child a Talker (ECAT); Speech and Language UK Progress Checker; Teddy Talk; and WellComm). These tools are discussed in the Language section of this review.

Table 1. Age range, skills assessed and purpose of available tools for speech and phonological awareness

Tool	Skills assessed	Age (years)	Purpose
Intelligibility in Context Scale (ICS) (McLeod et al., 2012a)	Speech intelligibility	4-5	Identification of need
Newcastle Assessment of Phonological Awareness (NAPA) (Stringer, 2019)	Language (phonological awareness)	3 and above	Identification of need; tracking progress; profiling strengths and needs
Preschool and Primary Inventory of Phonological Awareness (PIPA) (Dodd et al., 2000)	Language (phonological awareness)	3-6	Identification of need
SpeechLink (Speech and Language Link, 2023)	Speech	4-8	Identification of need

Tool	Skills assessed	Age (years)	Purpose
Speech Participation and Activity Assessment of Children (SPAA-C) (McLeod, 2024)	Speech	Unclear	Identification of need; tracking progress

Table 2 summarises the specific skills assessed, type of assessment (direct assessment; observation; rating checklist; parent/practitioner report); who the tool is designed for; and costs and training required for use for each of speech and phonological awareness tools discussed in this review.

Table 2. Descriptive characteristics of identification and assessment tools for speech and phonological awareness

Tool	Type of assessment	Who the tool is designed for	Cost	Training requirements for use
Intelligibility in Context Scale (ICS)	Rating scale by parent or caregiver	Speech and language therapist	Free	No specific training; administrative guidance available online
Newcastle Assessment of Phonological Awareness (NAPA)	Direct assessment	Teachers; speech and language therapists	Free	Instructions in manual, online tutorials available
Preschool and Primary Inventory of Phonological awareness (PIPA)	Direct assessment	Teachers; speech and language therapists	£198	No specific training; manual available for purchase
SpeechLink	Direct assessment	Teachers	£250 per year per school	Provided online at no extra cost

Tool	Type of assessment	Who the tool is designed for	Cost	Training requirements for use
Speech Participation and Activity Assessment of Children (SPAA-C)	Rating scale (child); broader report	Speech and language therapists; educators	Free	Instructions available online

Psychometric properties of speech and phonological awareness tools

Based on the publications identified in this review, few tools for assessing speech and phonological awareness have been evaluated sufficiently to provide information on their psychometric properties. Where available, the evidence on the reliability and validity of each of the tools and approaches are considered and summarised.

Table 3 summarises the psychometric properties of the identified speech and phonological awareness tools, indicating whether these properties were reported in the sources reviewed and, where possible, the quality of reporting those properties. The reporting quality is categorised as: low quality reporting (L; pale blue); moderate quality reporting (M; blue); good to excellent quality reporting (G; dark blue); reported but unclear (U; pale yellow); reported but quality rating not applicable (RNA; grey); and not reported (NR; white). The '1' indicates where multiple indicators of differing quality levels were presented; and the highest quality rating is represented.

Table 3. Psychometric properties of identification and assessment tools for speech and phonological awareness

Tool	Represent-ativeness	Size	Usability	Sensitivity/ Specificity	Concurrent validity	Discriminant validity	Face validity	Cross-cultural validity	Internal consistency reliability	Test-retest reliability	Inter-rater reliability
Intelligibility in Context Scale	RNA	M	U	L	M	NR	NR	RNA	G	G	NR
Newcastle Assessment of Phonological Awareness	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Preschool and Primary Inventory of Phonological awareness	RNA	G	NR	NR	G[1]	NR	NR	NR	G[1]	G[1]	U
SpeechLink	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	G
Speech Participation and Activity Assessment of Children	NR	NR	NR	NR	NR	NR	NR	RNA	NR	NR	NR

Measuring intelligibility

Intelligibility is the most suitable measure for children's speech in early years settings as it focuses on how successfully the child can get their message across.

The Intelligibility in Context Scale (ICS) (McLeod et al., 2012a) consists of a set of 5-point scales completed by a parent or caregiver, which assesses how intelligible the child is to a range of different communication partners (Table 1). The ICS is free and requires no specific training for use by parents or caregivers (Table 2). This subjective scale has reliable and valid data from many countries around the world (McLeod, 2020), including English-speaking countries like Australia (McLeod et al., 2012b), although it has not yet been tested with a representative UK sample.

Reliability reaches good-to-excellent levels and validity moderate levels, making it a robust tool to use in early years settings where different practitioners may be working with a child (Table 3). Furthermore, it has been validated in multiple languages. Sensitivity reaches acceptable levels, but specificity does not, meaning some children who do not need support may be identified as having difficulties. This balance in favour of sensitivity is a useful characteristic for a first screen.

To facilitate referral and discussions with other professionals, it is helpful for early years practitioners to determine how intelligible a child is in their setting. Although an intuitively simple task, in practice it is not always easy to estimate what percentage of a child's speech is understandable. There is a large amount of variability between children with regard to intelligibility, and pinpointing expectations is very difficult. Intelligibility is likely to differ according to the context in which the child is speaking, and who is listening to them. Furthermore, it can vary depending on how fast they talk (which remains highly variable between children even at age five) (Schölderle et al., 2021), and how loudly they talk, which may be different in different environments.

No published research was found during the rapid review that assesses the reliability or validity of early years practitioner's intelligibility judgements. However, some work has considered the reliability and validity of this task with unfamiliar listeners listening to children's spontaneous speech. Lagerberg et al. asked unfamiliar listeners to transcribe the spontaneous speech of 4-to-7-year-old children with and without a SSD (Lagerberg et al., 2014). The correlation between intelligibility ratings and an objective measure of accuracy in children with SSD was high (0.79). Similar validity has been shown with 4-to-5-year-old children (Gordon-Brannan and Hodson, 2000), indicating that subjective and objective ratings of speech show good correspondence.

Early years practitioners may therefore have the tools to gather information about a child's intelligibility through their own estimates, plus information gathered through the ICS from parents and caregivers. Research by Wren et al. (2016) and Hustad et al. (2020) suggest practitioners should refer children for specialist support if they are aged 3 years and 6 months or older and their speech is unintelligible to strangers (Wren et al.,

2016), if they are aged 4 years or older and their speech is unintelligible 50% or more of the time (Hustad et al., 2020), or if their speech is having an impact on participation or self-esteem.

Comparing the sounds the child can and cannot say to typical development milestones

The second way speech sounds can be assessed is through comparing the sounds a child can and cannot say to typical developmental milestones. Children acquire the speech sounds of their ambient language in a fairly predictable order, although there is a large amount of variability between children in the timing, exact order, and how quickly they master each new sound.

As a rough guide, we can look across studies measuring age of mastery, which is the age at which 90% of children are able to make and use a given speech sound. The most recent data from the UK (Dodd et al., 2003) show mastery of the following sounds by the time children are aged 3 years and 6 months: p, b, t, d, k, g, m, n, ng, f, v, s, z, h, w, l, y. Other sounds, particularly ‘th’ and ‘r’, may not appear until 6 or 7 years of age. These guidelines hold regardless of gender or family background (Dodd et al., 2003).

Speech milestones are available in the WellComm toolkit, which uses UK norms (Grunwell, 1985) and there is some guidance in Every Child a Talker (Department for Children, Schools and Families, 2008), and Teddy Talk. Additionally, the RCSLT recently published freely accessible guidance about SSD (RCSLT, 2024). Some tools, such as WellComm recommend that early years practitioners monitor children’s speech with reference to these milestones. No evidence was found during the review regarding the reliability and validity of practitioners’ ability to benchmark children against speech development milestones.

SpeechLink provides an online assessment tool to screen children’s (aged 4-8) speech and monitor progress (Table 1). The tool is designed to determine whether children present with age-appropriate speech (which may include some errors typical for their age), whether they would benefit from in-school support on account of showing delayed speech, or whether they have atypical speech and require further specialist assessment (Table 2). During assessment, children are shown a picture and asked to name it. The adult completing the assessment with them is prompted to listen to the initial or final sound in that word. The adult is given a set of responses to indicate what they have heard the child say, including the target sound and the most typical errors children make. For example, for the initial sound in ‘cat’, their options are 'c', 't', 'd', 'g', 'no sound' or 'other'. The SpeechLink speech screen is based on developmental norms from Dodd et al. (2003).

The concurrent validity of the SpeechLink assessment tool has not been established with reference to an SLT-led speech assessment and analysis, meaning we do not yet have

evidence that the Speech Link assessment accurately does what it sets out to do (Table 3). The authors indicate that pilot work indicated high reliability of the teaching assistant (TA)-led online assessment: TAs were found to select the same option as SLTs on 99% of trials (Ritchie, personal communication, 6th June 2024).

Specialist assessment

The third approach, specialist assessment, can only be used by SLTs and is essential for planning an appropriate intervention for children who have poor intelligibility. The SLT identifies and analyses all the errors that children make and the reasons they make them. Even if children are physically able to make all the speech sounds typically mastered by their age, they may not be able to use them in the right places in words. Some errors are very common. For example, cluster reduction is where children use one sound where an adult would use two or three next to each other: ‘pider’ instead of ‘spider’, or ‘tawberry’ instead of ‘strawberry’.

Cluster reduction is commonly seen in English-speaking children until they turn 4 years-of-age (Dodd et al., 2003). Familiar adults find it easy to tune into common errors such as this as they are predictable. This type of error in a child older than 4 years old would suggest their speech sound development is delayed. Other errors such as replacing a ‘t’ with a ‘k’ (producing ‘bat’ as ‘back’), would be classed as ‘atypical’ as this error is not commonly seen in children at any age. Children who make ‘atypical’ errors are less easy to tune into, and these children are very likely to need specialist support to become more intelligible.

Phonological awareness

Phonological awareness can be formally assessed, with most standardised assessments available from the age of 3 (Dodd et al., 2000). It can also be informally assessed from the same age. Early informal assessment can help identify children whose speech sound difficulties may impact on their early phonics acquisition when they reach the Reception year, highlighting a need for early targeted support.

Children with low intelligibility may benefit from informal assessment of phonological awareness from approximately age 3 to guide targeted support for this skill set where phonological awareness activities are not a routine part of universal provision. From this age, children should begin to develop syllable-level phonological awareness. With sufficient adult support they should be able to clap along to the syllables in familiar words and start to understand that familiar compound words such as ‘rainbow’ have two parts that can be said separately. For example, if an adult says the first part "rain" from "rainbow", the child should be able to finish the word by saying the second part, "bow".

Formal phonological awareness measures developed in the UK and available for use by early years practitioners are the Preschool and Primary Inventory of Phonological Awareness (PIPA) (Dodd et al., 2000) and the Newcastle Assessment of Phonological

Awareness (NAPA) (Stringer, 2019) (Table 1). Both assessments consider a child's awareness of syllables (e.g., clapping along to the syllables in multisyllabic words), rhymes (e.g., identifying whether two words rhyme or not), and phonemes (e.g., identifying the first sound in a word) (Table 2). The aim of the NAPA is to establish the child's Zone of Actual Development (what they can currently achieve independently) and their Zone of Proximal Development (what they can achieve when given some support (Vygotsky, 1986). The child's Zone of Proximal Development is indicative of what the child could independently achieve given appropriate intervention, thereby helping language and education professionals to set goals for them.

Although the PIPA (Dodd et al., 2000) provides UK norms, the psychometric properties of the assessment are reported for other English-speaking samples. Properties are variable for this assessment across subtests, with test-retest reliability ranging from poor-to-excellent, and concurrent validity ranging from good-to-excellent (Table 3). This variability suggests that the PIPA may be more useful for mapping a child's profile across different areas of phonological awareness, but less useful for comparing children to their peers. The psychometric properties of the NAPA measure (Stringer, 2019) have not been evaluated (Table 3).

Communicative participation

Finally, early years practitioners can likely make a judgement regarding the degree to which a speech sound disorder is affecting the child's communicative participation in their setting. They may want to gather wider evidence about how it is affecting the child in other contexts to decide if a referral to an SLT is needed for milder difficulties or whether the strategies they have implemented to support successful communication are effective. The Speech Participation and Activity Assessment of Children (SPAA-C) may be useful (McLeod, 2024) (Table 1). The SPAA-C is designed to collect information about the impact of speech difficulties on children's lives (Table 2). It includes questions for different significant people (the child, parents, caregivers, siblings, teachers, and friends) and child self-report ratings of how they feel about their speech across different contexts. The psychometric properties of the SPAAC have not been evaluated (Table 3).

Usability of speech and phonological awareness tools

Usability was difficult to judge from the published papers and manuals found from this review. Often only the time taken to administer a tool is reported. For the ICS, this is reported to be 5 minutes, while the PIPA takes 25-30 minutes, and the NAPA up to 30 minutes. Usability details for the SPAA-C and milestone tools (WellComm, ECAT, RCSLT guidelines) were unavailable (Table 3).

The usability of WellComm, which provides developmental milestones for speech, has been evaluated through educator surveys and semi-structured interviews (Dysart and Code, 2023). In this evaluation report, usability for the speech component was not

explicitly discussed, but a number of practitioners expressed concern that the WellComm did not pick up children with speech difficulties.

Formal usability data for SpeechLink are unavailable.

Identifying and assessing speech needs in bilingual children

The prevalence of SSD in bilingual or multilingual children is similar to that for monolingual children (Hambly et al., 2013). Whether assessed for intelligibility by known adults, or assessed for errors by an SLT, bilingual or multilingual children should be assessed in all their ambient languages (McLeod et al., 2023). When considering intelligibility in early years settings, it is important to gather caregivers' observations about intelligibility in contexts where multilingual children speak languages other than English (the ICS is available in 66 languages to allow this assessment) (McLeod et al., 2015, McLeod et al., 2012b, McLeod et al., 2012a). It is equally important that SLTs consider speech sound development across languages for bilingual and multilingual children, as rate and patterns of speech errors do not follow those of monolingual children (Hambly et al., 2013). It follows that if practitioners are using developmental milestones to support observation of a child's speech, they should not assume that a child with multiple languages will follow the same developmental pathway as a child growing up in a monolingual environment.

Using the speech measures to determine support levels

Universal

A key element of universal provision is phonological awareness support at the appropriate developmental level for the child. Early years practitioners play an essential role in preparing children for formal education. In early literacy, children need to enter their Reception year with a solid foundation in phonological awareness, at least at the level of the syllable. They should be able to independently clap out the syllables in familiar multisyllabic words, such as 'butt-er-fly', and provide a missing syllable. For example, if shown a picture of a butterfly and told, "This is a butterfly. The word butterfly has three parts, I will start it, and you finish it; butt-er-" the child should respond with 'fly'.

An additional syllable level skill is the identification of rhyme. A valuable skill for a child entering formal phonics tuition is the ability to judge whether two words rhyme. However, a child at this stage should not be able to generate rhyme, as this is classed as part of phoneme level awareness.

An additional essential component of good universal practice is the ability to identify children with speech difficulties and refer them to SLT. If a child is not reaching a level of intelligibility comparable with other children or is not using a number of the sounds expected for their age, then they should be referred for specialist assessment.

Research by Wren et al. (2016) and Hustad et al. (2020) suggests that being unintelligible to strangers at age 3 years and 6 months old is a risk factor for persistent speech sound difficulties (Wren et al., 2016) and should prompt a referral. Similarly, if 50% or more of a child's speech remains unintelligible at age 4 years old or older (Hustad et al., 2020), they should be referred to an SLT. If a child is having difficulty making just one or two of the sounds expected for their age, most commonly 's' and 'z', they would typically not receive specialist support during the pre-school years, unless that the difficulty was impacting their self-confidence or how likely they are to take part in activities. Practitioners should consider the potential impact this is having for the child in the early years setting and discuss any wider effects with parents or caregivers. The SPAA-C measure may be useful to gather this kind of data formally.

Targeted

When a child is often unintelligible, in addition to referring them to an SLT, practitioners can provide targeted support for phonological awareness and use communication support strategies. This can be done while waiting for the SLT's assessment or in collaboration with the SLT once a programme of intervention has been planned.

Phonological awareness assessments, such as the PIPA and the NAPA, can help identify children with delayed phonological awareness development. Phonological awareness follows a rough developmental pattern, whereby large segment awareness (word and syllable awareness, and rhyme identification) precedes small segment awareness (phoneme awareness). Phonological awareness can be assessed to indicate where to start with a targeted intervention and re-assessed after a period of targeted support to enable progress monitoring.

SpeechLink provides resources for in-school support of children with speech sound delays, that is, children who use speech sound errors typical of a younger child. SpeechLink recommends specific programmes of support for children based on their speech screen. For example, a four-year-old child who uses 't' instead of 's' would be recommended a set of listening and production activities that focus on that specific error. While this programme has not been formally evaluated, it is based on established intervention practices. SpeechLink recommends referral to speech and language therapy for children who show a pattern of atypical speech sound errors at screening assessment.

Specialist

To be effective and safe, interventions for SSD must be delivered by an SLT, or an SLT assistant (SLTA) or early years practitioner under the direct supervision of an SLT or SLTA. Speech interventions must be tailored to a child's specific speech profile, as inappropriate approaches can be ineffective and potentially harmful, leading to feelings of

failure and frustration. Ongoing speech and language therapy oversight is essential, as children's speech profiles and intervention needs change over time.

It is essential to bear in mind that speech sound disorders can have a substantial impact on children's participation and activity (McCormack et al., 2009) as well as their peer relationships (Wren et al., 2023). As such, the right support at the right time is critical for children with low intelligibility.

Language

A much larger number of assessment tools are available for children's language compared to speech and stammering. However, they vary with respect to the age-ranges covered, their intended purpose (identification of need, profiling strengths and weaknesses and monitoring progress) and their methods of assessment (parental report, direct testing, observation) (Table 4; Table 5).

Table 4. Age range and purpose of available tools for language

Tool	Skills assessed	Age (years)	Purpose
Ages and Stages Questionnaire (ASQ) (Squires and Bricker, 2009)	Speech; Language (global speech, language, and communication skills)	10 months - 5 years	Identification of need
British Picture Vocabulary Scale (BPVS) (Dunn et al., 2009)	Language (receptive vocabulary)	3-6	Identification of need; tracking progress
Early Language Identification Measure and Intervention (ELIM-I) (Law et al., 2023)	Speech; Language (global SLC skills; expressive vocabulary)	1-3	Identification of need
Every Child a Talker (ECAT) (DCSF, 2008)	Speech; Language (expressive and receptive language; speech sounds; social communication)	0-5	Identification of need; tracking progress; profiling strengths and needs
Grammar and Phonology Screening test (GAPS) (Van der Lely et al., 2006)	Language (grammar and phonological memory)	3-6	Identification of need
ILL/RLL Infant Language Link (ILL) and Reception Language Link (RLL) (Patterson et al., 2013, Patterson et al., 2014)	Language (receptive and expressive language)	1-6	Identification of need; tracking progress; profiling strengths and needs

Tool	Skills assessed	Age (years)	Purpose
LanguageScreen (Hulme et al., 2024)	Language (expressive and receptive vocabulary; listening comprehension; sentence repetition)	3-6	Identification of need; tracking progress; profiling strengths and needs
Oxford Communicative Development Inventory (CDI) (Hamilton et al., 2000)	Language (expressive and receptive vocabulary)	11 months - 26 months	Identification of needs
Renfrew Action Picture Test (RAPT) (Renfrew, 2019)	Language (expressive language)	3-8	Identification of need; profiling strengths and needs; tracking progress
Renfrew Bus Story (Renfrew, 2001)	Language (expressive oral narrative skills; scoring information load; grammatical complexity)	3-6	Identification of need; tracking progress; profiling strengths and needs
Speech and Language UK Progress checker (Speech and Language UK)	Speech; Language (expressive and receptive language; attention and listening; speech; social communication)	6-11	Identification of need; tracking progress

Tool	Skills assessed	Age (years)	Purpose
Structure of Growing Skills III (SOGS) (Bellman et al., 1996)	Language (expressive and receptive language; vocalisations)	1-5	Identification of need; tracking progress; profiling strengths and needs
Sure Start Language Measure (SSLM) (Harris et al., 2004)	Language (expressive vocabulary)	1-3	Identification of need; tracking progress
Teddy Talk (Teddy Talk Test, 2022)	Speech; Language (expressive and receptive language; speech sounds)	18 months - 5 years	Identification of needs; profiling strengths and needs
UK Bilingual Toddler Assessment Tool (UK BTAT) (Plymouth University Baby Lab, 2024)	Language (expressive and receptive vocabulary)	1-3	Identification of need
UK-Communicative Development Inventory (UK CDI) (Alcock et al., 2020)	Language (expressive vocabulary)	10 months - 3 years	Identification of need; tracking progress
Wellcomm (Sandwell and West Birmingham Hospitals NHS Trust, 2015)	Stammering; Speech; Language (expressive and receptive language; grammar; speech sounds; fluency and voice)	10 months - 6 years	Identification of need; tracking progress; profiling strengths and needs

Table 5. Descriptive characteristics of identification and assessment tools for language

Tool	Type of assessment	Who the tool is designed for	Cost	Training requirements for use
Ages and Stages Questionnaire (ASQ)	Rating scale (by parent or caregiver)	Health care professional; early years practitioners	$295	User guide and training DVDs available for purchase
British Picture Vocabulary Scale (BPVS)	Direct assessment	Education professionals	£324	No specific training; kit comes with a manual; training video and support available online.
Early Language Identification Measure and Intervention (ELIM-I)	Checklist (by parents or caregiver) and observation	Health visiting practitioners	Free	Handbook available online
Every Child a Talker (ECAT)	Observation	Early language lead practitioners	Free	Online guide to delivery
Grammar and Phonology Screening test (GAPS)	Direct assessment	Education, health, and social care professionals	Free	None
ILL/RLL Infant Language Link (ILL) and Reception Language Link (RLL)	Direct assessment	Early years practitioners	£375	Training videos and webinars
LanguageScreen	Direct assessment	Early years practitioners	£275-£395 per year	No specific training; information available on website an app
Oxford-Communicative Development Inventory (CDI)	Checklist (by parent or caregiver)	Parents, caregivers, education, or health professionals	Free	None

Tool	Type of assessment	Who the tool is designed for	Cost	Training requirements for use
Renfrew Action Picture Tet (RAPT)	Direct assessment	Speech and language therapist; SENCO; teachers	£97.14	No specific training; kit included instruction booklet with guidance
Renfrew Bus Story	Direct assessment	Teachers; speech and language therapists	£56.34	None; manual to be consulted before use.
Speech and Language UK Progress Checker	Parent or caregiver; practitioner report	Parents, caregiver, or educators	Free	No specific training
Structure of Growing Skills III (SOGS)	Direct assessment; observation; checklist (by practitioner)	Health visitors; paediatricians; general practitioner (GP)	Unknown	Manual; training course (training not mandatory)
Sure Start Language Measure (SSLM)	Checklist (by parent or caregiver)	Early years practitioners	Free	No specific training
Teddy Talk	Direct assessment; observation	Early years practitioners; health visitors; speech and language therapists; family support workers; parents; caregivers; childminders; teachers; portage home visitors	£125	Training delivered by speech and language therapists (£50 per person)
UK Bilingual Toddler Assessment Tool (UK BTAT)	Broader report (by parents or caregivers)	Early years practitioners	Free	Tutorial videos available online

Tool	Type of assessment	Who the tool is designed for	Cost	Training requirements for use
UK-Communicative Development Inventory (UK CDI)	Checklist (by parents or caregivers)	Education and health professionals; speech and language therapist	£24.99	No specific training; manual available for purchase
Wellcomm	Checklist (by parents, caregivers, practitioners); observation; direct assessment	Early years practitioners; SENCO; teaching assistants; speech and language therapists	£449	Handbook and bespoke online training delivered in schools or trusts.

Different assessment methods offer distinct advantages, disadvantages, and suitability for varying groups of children. Whilst direct testing standardises judgements more reliably than observational tools, observational approaches provide more holistic judgements about how a child functions in the real world. This may be more important for children who are less familiar with testing situations, or the types of tasks included in standardised tests, perhaps due to varying family and cultural characteristics.

Similarly, parental report measures provide valuable insights into a child's language and communication within the home environment, which may differ from observations in early years settings, particularly when a child has recently joined a new setting or if they are temperamentally more 'shy'. However, an individualised approach is needed as not all parents or caregivers will find this an easy task and may need support to complete tools for reasons such as literacy and language differences, or unfamiliarity of making judgements and observations of their child's development. The optimal approach is to use more than one method to assess a child's language abilities and to always contextualise any test score with wider knowledge of the child from the early years practitioner and the parents or caregivers.

To make appropriate use of such tools, training is essential. While many tools come with guidance, videos, or training courses, it is perhaps more important to have the skills to interpret those scores. This involves synthesising the results with wider knowledge of the child, language development, speech, language, and communication needs (SLCN) to make decisions regarding next steps for the child. Broader training is required, as is the development of specialist knowledge in key staff members (for example, speech and

language leads) and the embedding of decision-making within models of partnership with SLTs (see Work Package 3: Working together).

Psychometric properties of language tools

A total of seventeen tools were identified which measure language (Table 4). An additional two focus on phonological awareness (PIPA and NAPA). While phonological awareness is a language skill, supporting children's phonological awareness is relevant to supporting children with speech difficulties. Given this, PIPA and NAPA tools are discussed in the speech section under Phonological awareness.

For three tools, namely, Every Child a Talker (ECAT), the Speech and Language UK Progress Checker, and Teddy Talk, there were no published details regarding their psychometric properties (Table 6). ECAT is a tool describing children's development at various ages which practitioners can use to benchmark children's development against (Table 5). We are aware that the ECAT programme involved substantial development work, but we were unable to find a clear methodology for developing or evaluating the ECAT tool. Speech and Language UK Progress Checker is an online questionnaire run by Speech and Language UK which briefly indicates whether a child may need support based on responses to a series of questions linked to language and communication milestones (Table 5). Thirdly, Teddy Talk is an informal direct assessment of speech and language, revolving around the use of toys and props. Instructions increase in complexity as the number of 'key words' increases.

Of the remaining fourteen tools, the Renfrew Action Picture Test (RAPT) and Oxford Communicative Development Inventories (CDI) only report data regarding the size and nature of the standardisation sample with no other psychometric detail provided (Table 6). RAPT is a direct assessment of children's language in which children describe a series of pictures while an adult transcribes their responses (Table 5). The responses are then scored based on the accuracy and complexity of the information (their meaning) and the grammar used in the sentences. The Oxford CDI is a development inventory where parents or carers are asked to fill in a checklist of the words children understand or use. It is a 416-item vocabulary checklist of words which can be downloaded or completed online.

The following focuses on the remaining twelve tools with available evaluation of their accuracy in identifying needs and psychometric characteristics.

Table 6 summarises the psychometric properties of the identified language tools, indicating whether these properties were reported in the sources reviewed and, where possible, the quality of reporting those properties. The reporting quality is categorised as: low quality reporting (L; pale blue); moderate quality reporting (M; blue); good to excellent quality reporting (G; dark blue); reported but unclear (U; pale yellow); reported but quality rating not applicable (RNA; grey); and not reported (NR; white). The '1' indicates where multiple indicators of differing quality levels were presented; and the highest quality rating is represented.

Table 6. Psychometric properties of identification and assessment tools for language

Tool	Represent-ativeness	Size	Usability	Sensitivity/ Specificity	Concurrent validity	Discriminant validity	Face validity	Cross-cultural validity	Internal consistency reliability	Test-retest reliability	Inter-rater reliability
Ages and stages Questionnaire	RNA	G	NA	L	G	NR	NR	RNA	U	G	G
British Picture Vocabulary Scales	RNA	G	U	NR	G	NR	NR	NR	U	G	NR
Early Language Identification Measure and Intervention	RNA	L	U	M	NR	NR	NR	RNA	NR	NR	NR
Every Child A Talker	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Grammer and Phonology Screen	RNA	M	NR	L	M	NR	NR	NR	G	NR	NR
Infant and Reception Language Link	RNA	G[1]	U	NR	G	U	NR	NR	G	G	NR
LanguageScreen	U	G	U	NR	G	NR	NR	NR	G	G	NR
Oxford CDI	RNA	L	NR	NR	NR	NR	NR	NR	NR	NR	NR

Tool	Represent-ativeness	Size	Usability	Sensitivity/ Specificity	Concurrent validity	Discriminant validity	Face validity	Cross-cultural validity	Internal consistency reliability	Test-retest reliability	Inter-rater reliability
Renfrew Action Picture Test	RNA	M	NR	NR	NR	NR	NR	RNA	NR	NR	NR
Renfrew Bus Story	RNA	L	NR	M	G	NR	NR	RNA	NR	M	U
Speech and Language UK Progress Checker	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Schedule of growing skills III	RNA	L	NR	M[1]	G	NR	NR	NR	G	NR	NR
Sure Start Language Measure	RNA	M	NR	G	G	NR	NR	NR	G	G	NR
Teddy Talk	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
UK CDI	U	G	NR	NR	M	NR	NR	NR	M	NR	NR
WellComm	U	NR	NA	L	G	NR	RNA	NR	NR	NR	NR

Accuracy in identifying needs

Seven assessment tools report their accuracy in identifying needs in terms of sensitivity (the ability to correctly identify children with difficulties) and specificity (the ability to correctly identify children without difficulties). Following the quality ratings framework by Law et al. (2000) and Michael et al. (2013), these tools were classified as good-to-excellent when both sensitivity and specificity exceeded 80%, moderate when the combined accuracy of sensitivity and specificity was at least 150 (e.g., 75% sensitivity and 75% specificity), and low when this sum was below 150.

Only one tool, the Sure Start Language Measure (SSLM), met the threshold for good-to-excellent accuracy in identifying needs, with sensitivity at 83% and specificity at 80% (Wilson et al., 2022) (Table 6). The SSLM has the best accuracy in identifying needs of the available tools found in this review and is particularly suited to identifying needs in young children (Table 4). The SSLM, a 100 or 50-item vocabulary checklist, is a free parental report measure that provides a valid and reliable assessment of young children's vocabulary development (Table 5). While it has a moderate standardisation sample (n = 1290), it is highly representative in terms of ethnicity and maternal education, though its geographic representation is limited to England (Table 6). Some parents or caregivers may need support to complete the checklist reliably, however the SSLM is embedded within the Early Language Identification Measure and Intervention (ELIM-I) process alongside practitioner observation which can facilitate important conversations about a child's language development.

The ELIM-I is also suited for early identification of speech and language needs in young children (Table 4; Table 5). It demonstrates moderate accuracy in identifying needs, with high sensitivity (98%) but lower specificity (63%) (Law et al., 2024) (Table 6). The tool was developed for use within Health Visiting teams and is based on a relatively small but diverse sample (n = 362), drawn from five regions in England representing a range of urban and rural areas, socioeconomic status, and ethnicity profiles (McKean et al., 2022) (Table 5; Table 6). The sample was slightly skewed towards lower socioeconomic status but included families from all socio-economic deciles as defined using the Income of Deprivation Affecting Children Index (IDACI) (Law et al., 2023). Although no direct reliability and validity measures are available for the ELIM-I as a whole tool, these can be extrapolated from the SSLM for the wordlist component.

Two additional tools, the Renfrew Bus Story and Schedule of Growing Skills III (SOGS), also demonstrate moderate accuracy in identifying needs. The Renfrew Bus Story, a narrative assessment using a story retell task, was standardised on a small UK sample (n = 573) and has good validity but lower reliability, particularly in terms of inter-rater reliability when scoring narrative complexity (Table 5; Table 6). It is a test of oral narrative skills, measured by a story recall task. Both the grammatical complexity of the child’s utterances and the information load used is scored. The tester shares a textless story picture book with the child. The child listens to the tester telling the story and then, with

the picture book to prompt them, retells the story. The child's story recall is recorded, and transcription is scored for grammatical complexity and information load.

The SOGS achieves moderate accuracy in identifying needs for children aged 25-52 months but has lower accuracy for younger children (0-24 months) (Table 6). SOGS is a developmental screen that uses "guided" activities to assess 9 areas of development. The assessment of language is split into two skill areas, receptive (hearing and language) and expressive (speech and language). It was standardised on a small sample (n = 348) with some demographic data available, though the extent to which the sample represents the UK population remains unclear. The tool has strong concurrent validity and good reliability in terms of internal consistency. However, we do not know about test-retest reliability. The Renfrew Bus Story and SOGS may be useful in slightly older children, ages which are not covered by the SSLM and ELIM-I.

Three tools, Grammar and Phonology Screen (GAPS), WellComm, and Ages and Stages Questionnaire-3 (ASQ-3), were rated as having low accuracy in identifying needs (Table 6). The GAPS tool, which assesses grammatical processing through repetition tasks, has moderate concurrent validity and good internal consistency reliability but lacks reported test-retest reliability. Its standardisation sample was moderately sized (n = 688).

WellComm's sensitivity and specificity have been evaluated in children aged 3 to 6 years, with results showing sensitivity of 88% and specificity of 58.5% (Sandwell and West Birmingham Hospitals NHS Trust, 2015) (Table 6). In children aged 30 to 35 months, sensitivity was 74% and specificity was 68% (Seager and Abbot-Smith, 2016). These results contribute to a low-quality rating for the tool. While its high sensitivity is a positive feature for an identification tool, the overall balance between sensitivity and specificity means that both under- and over-identification can occur. WellComm is valued for its usability and integration of multiple assessment methods, including observation, parental report, and direct testing. However, it has not been formally standardised, and its norms were derived from prior research rather than an independent sample, raising concerns about validity and potential bias. Concurrent validity is good, but we were not able to identify robust measures of reliability (Sandwell and West Birmingham Hospitals NHS Trust, 2015) (Table 6).

The ASQ-3 has excellent specificity (98-100%) but poor sensitivity (25-48%) in the language and communication domain (Wilson et al., 2022; Duggan et al., 2023) (Table 6). Originally designed to estimate population-level needs (in five domains: communication, gross motor, fine motor, problem solving, and personal-social), the ASQ-3 was not intended to identify individual children requiring intervention (Lysons et al., 2024). It has not been standardised on a UK population, and its cut-points in score were not empirically derived. While it can be useful for assessing holistic development within a broader developmental review, it is not appropriate for identifying speech and language needs in early years settings.

Psychometric robustness

In terms of psychometric robustness, five tools have moderate to good standardisation samples and strong validity and reliability measures: the ASQ-3, the British Picture Vocabulary Scales third edition (BPVS III), the Infant/Reception Language Link, Language Screen, and SSLM (Table 6). With the exception of the SSLM, all these tools employ modern psychometric techniques, such as item response theory or Rasch analysis, increasing confidence in their quality. However, this shortlist does not fully cover the range of assessment purposes and age groups required for identifying, tracking, and supporting speech and language development in children aged 0-5 years.

Four tools, the GAPS, Renfrew Bus Story, SOGS, and UK-CDI, demonstrate both validity and reliability, though their standardisation samples are smaller or less representative (Table 6). The three remaining tools, the ELIM-I, UK Bilingual Toddler Assessment Tool (UKBTAT), and WellComm, have documented validity but lack clear reliability data.

The BPVS III is a well-validated measure of receptive vocabulary, a key predictor of literacy and other language skills (Table 5). In terms of use, children respond to a stimulus word by selecting a picture from four options that best illustrates that word's meaning. Its large standardisation sample (n = 3278) was stratified to represent school achievement across different regions (Table 6). Modern psychometric methods were used but sensitivity and specificity are not reported. While BPVS III is useful for measuring progress in response to universal and targeted provision, it should not be used in isolation for identifying language needs.

The Infant and Reception Language Link tools provide reliable and well-validated resources for identifying speech and language needs across a broad age range (1-5 years) using modern psychometric methods (Table 4). Reception Language Link (RLL) has an extensive standardisation sample (n = 32,233), while Infant Language Link's (ILL) sample is more moderate (n = 769) (Table 6). The demographic representativeness of these samples is well-documented, though there was some geographic bias toward southern England. Although sensitivity and specificity data were not available, the tools are considered reliable and effective for tracking language development over time.

The LanguageScreen is a short, tablet-based tool designed to assess children's language skills and track their progress (Table 5). It was initially developed to support the Nuffield Early Language Intervention (NELI) programme using modern psychometric methods. Language Screen is robust, valid, and reliable. We were unable to find a measure of its sensitivity and specificity in identifying children with needs. The tool has been developed and standardised using an extremely large sample of children (n = 350,000) However, the demographic representativeness of this sample, particularly regarding social disadvantage and geographical diversity, is unclear.

The UK-CDI is a parental report measure, consisting of a checklist of words and gestures that a child can say or understand (Table 5). It is standardised in the UK with a relatively large sample (n = 1693) (Table 6). Significant efforts were made to ensure the cohort was representative of the UK population in terms of socioeconomic status, gender, region, and other demographic factors (Jago et al., 2023; Alcock et al., 2020). It has moderate validity and internal consistency reliability, though test-retest reliability data were not available.

Finally, the UKBTAT, specifically designed for bilingual language assessment, is based on a small standardisation sample (n = 372) (Table 6). It is an online tool designed to help early years practitioners in the UK to decide whether a 2-year-old bilingual toddler is at risk of a language delay (Table 5). It is intended for children learning British English plus an additional language from the following: Bengali, Chinese Cantonese, Dutch, French, German, Greek, Hindi/Urdu, Italian, Chinese Mandarin, Polish, European Portuguese, and Welsh. While demographic factors were reported, it is unclear how representative the sample is of the UK bilingual population. The tool has good validity, but no reliability measures were identified in this review (Table 6).

In summary, the SSLM is the most accurate in identifying needs, while the ELIM-I, Renfrew Bus Story, and SOGS offer moderate accuracy in identifying needs. Tools such as BPVS III, Infant and Reception Language Link, and LanguageScreen provide psychometric robustness but without evaluation of sensitivity and specificity and other relevant measures it is difficult to be sure of their accuracy in identifying needs. Indeed, the BPVS, as measure only of vocabulary, could miss many children with difficulties in other domains. The UK-CDI and UKBTAT show promise but require further reliability testing, and tools like GAPS, WellComm, and ASQ-3 demonstrate limitations in their accuracy in identifying needs. A comprehensive approach to assessment should consider multiple tools, balancing accuracy in identifying needs, psychometric robustness, and practical usability.

Usability of language tools

Usability is difficult to judge from the published papers and manuals available for this review. The vast majority simply present data regarding the time taken to complete the assessment.

The acceptability of the ASQ-3 at the 2 to 2 years and 6 months year Health Visitor review has been evaluated and is generally acceptable to parents or caregivers and professionals (Lysons et al., 2024, Kendall et al., 2019). However, there are some reported concerns about its applicability in the UK due to ‘Americanised’ language and the potential to raise anxiety unnecessarily in families, although this is a consideration for all early identification tools, not just the ASQ-3. The importance of practitioner training for appropriate use is also emphasised as both implementation (e.g. scoring) and

interpretation of scores can vary considerably. Appropriate skills and knowledge regarding broader developmental evaluation are required to make appropriate judgements regarding a child's developmental progress (Lysons et al., 2024, Kendall et al., 2019, Law et al., 2020).

The usability of WellComm within a context of training and support from SLTs has been evaluated through educator surveys and semi-structured interviews (Dysart and Code, 2023), where practitioners comment on the use of the screening tool and the 'Big Book of Ideas'. In this evaluation, overall ratings for usability were good with the need for support and training and a period of learning and adjustment required emphasised.

Identifying and assessing language needs in bilingual children

The ASQ-3 has been adapted for use in a number of different languages and cultural contexts. The CDI also has versions available in a range of languages; however, these are not standardised on UK populations speaking these languages nor do they take account of the bilingual context. The UKBTAT is specifically designed for bilingual populations, although for a very narrow age range and limited number of languages. No other tools identified here have been adapted for use with languages other than English or in bilingual contexts. Some guidance is provided for use in a number of tools with widely varying levels of detail.

Guidance on differentiating between English as an Additional Language (EAL) and language difficulties in early years settings are described in detail in Pert (2023). To summarise, for a child who speaks or is exposed to more than one language to have speech or language needs then they must have difficulties in both or all languages they are exposed to. If a child enters a setting having been exposed to very little English, it will take considerable time for them to learn English and 'catch up' with their monolingual peers. If they are not experiencing difficulties in their home language(s) then the outlook is very good and, given enough time and exposure to English within the early years and school setting they will be able to build on the firm foundation of their home language knowledge and become proficient in both languages.

To identify if a child has language needs in this context it is essential to ask families about their child's language and communication at home and to monitor how a child's English language progresses over time. If they are finding it more difficult than other children from similar backgrounds or have difficulties in home language(s), then they should be referred for speech and language therapy assessment. It is vital that professionals check about home language development with parents rather than adopting a "wait and see" approach which can lead to much later referrals to SLT for bilingual children with needs. Also, some families who do not speak English may have no experience of speech and language therapy services and may need support and reassurance to access these services (Pert, 2023).

Under no circumstances should families be encouraged to give up their home language. Bilingualism brings social, cultural, and cognitive benefits. Valuing, reinforcing, and raising the status of a child's home language within the early years setting will support their home language development and, as a result, their English language development: the more robust a child's first language development, the easier it is to acquire a second language.

Using the language measures to determine support levels

In the language domain there are more 'fuzzy' boundaries between practitioners and professionals in terms of their roles, skills, and knowledge in promoting language development than for speech and stammering. However, this does not mean that educational professionals can or should work in isolation to support children's language at a universal or targeted level. The best outcomes are achieved when SLTs and educational practitioners and services work together to understand the needs of the children in a school/locality and develop models of collaborative work to meet those needs.

A number of tools assign Red Amber Green (RAG) categories to children's scores, mapping to specialist, targeted and universal support, respectively. Bandings in centile scores are also often cited as a method for assigning children to RAG categories. A centile score indicates a child's relative ability in comparison to other children. In a representative sample of 100 children, if a child has a score at the 50th centile then there would be 50 children with higher scores and 49 children with lower scores in the sample; if a child has a score at the 10th centile there would be 90 children with a higher score and 9 with a lower score and so on. RAG ratings are usually assigned as follows: Red for less than or equal to the 10th percentile, Amber for the 11th to 16th percentile, and Green for greater than the 16th percentile.

It is important to avoid assigning RAG ratings based solely on a single measure or cut point, as this approach can lead to both under-identifying and over-identifying children in need of support. This is due to the lack of fully comprehensive perfectly reliable and valid measures, less than optimal sensitivity and specificity, changes in children's language abilities over time and individual differences in the impact of language difficulties on a child's social and educational participation and mental health.

Therefore, whilst the RAG bandings produced by assessment tools or centile scores are indicative, they must be considered alongside other information, especially for children falling just above or below cut points. These supplementary considerations include:

- Observations of language and communication abilities in everyday activities to judge whether the child's performance in the assessment represents their typical abilities

- Benchmarking tools in use within the setting
- Progress over time: lack of progress indicating the need for a higher level of support
- Parent/caregiver reports of language and communication abilities at home, and particularly any concerns.
- Additional risk factors which make persisting difficulties more likely such as family history of language or literacy difficulties; sex is male; being a younger sibling; social disadvantage; socio-emotional and behavioural difficulties
- Effects on the child's communicative participation in terms of social and educational participation and social-emotional wellbeing: some children with 'milder' difficulties can be significantly affected.

For practitioners to be able to consider these factors, discussion with parents or caregivers is essential. Discussion with other professionals would also support this holistic approach such as with Health Visiting teams.

Furthermore, the age at which a child presents with lower language abilities affects the degree to which we can be confident that a low score on a test indicates the need for specialist referral. Local speech and language therapy referral pathways often detail specific referral criteria at different ages and early years settings should work together with their local speech and language therapy service to use this guidance effectively.

Universal

Due to the critical role of robust language development in children's educational progress, high-quality, language-promoting, universal provision is vital for all children if they are to reach their full potential. Furthermore, the lack of precision in identification tools and the dynamic nature of children's early language development make this provision more important. Identification of children with needs in this age range will always be inexact, and so we need universal Quality First teaching to be available so that any children who have language needs but are 'missed' will still benefit from language-enriching environments, interactions, and opportunities.

Monitoring of children's language development over time in the early years is also vital, addressing three issues. First, it tackles the volatility in language development to ensure children who grow into and out of language difficulties receive the right level support. Second, it provides a safety net for any children who may be missed by inexact measures. Third, it enables practitioners to use children's response to support as an additional indicator as to whether a child may need to move up the universal, targeted and specialist levels of provision intensity. Children who do not benefit from high-quality universal provision or targeted support as expected should have the level of support they receive increased.

Targeted

Early years settings should use assessment tools in conjunction with the supplementary considerations previously described to identify children who could benefit from targeted support. This should include discussion with parents/caregivers.

Where moderate language difficulty is present, parents and caregivers are not overly concerned, there are few additional risks present, and the child does not meet the criteria for local speech and language therapy referral, then targeted support can be offered. Also, targeted intervention can be provided when a child has been referred to speech and language therapy and is waiting for assessment.

Such decisions are facilitated where settings have open channels of communication with their local SLT to discuss children they are concerned or unsure about and agree whether referral is appropriate or what to look out for in terms of progress that might trigger a referral in the future. Such collaborative practices not only support decisions for individual children but also build the capacity and confidence of practitioners to make these nuanced, holistic decisions.

Specialist

Early years settings should use assessment tools in conjunction with the supplementary considerations described to identify children who could benefit from specialist support.

When more significant language difficulties are present and are affecting a child's social and educational participation, and the child is older than 36 months, specialist referral to speech and language therapy is suggested (Bishop et al., 2016, 2017; Reilly et al., 2015). When a child is younger than 36 months with more severe language difficulties, practitioners may consider the supplementary considerations outlined previously and local speech and language therapy referral criteria (McKean and Reilly, 2023; Reilly and McKean, 2023; Law, Reilly and McKean, 2022). Research by Reilly et al. (2015), Brignell et al. (2016), and Wilson et al. (2018) supports the immediate referral of children older than 12 months to speech and language therapy when parents or caregivers express significant concern, when children show limited gestures, responses to speech, or understanding, or when there is a loss of previously acquired language or communication skills. Early years settings and SLTs should discuss how to work together to support children receiving specialist support. This may be delivered by practitioners under speech and language therapy oversight, or it may be delivered directly by the speech and language therapy service with the practitioner team, providing complementary support perhaps as part of targeted intervention groups, adaptations to universal strategies and additional practice.

Early years practitioners should also be familiar with other language enriching opportunities for this age group which they should signpost families to in their local offer such as Look, Say, Sing, Play groups or resources, Local Library shared story and rhyme

times, and speech and language therapy drop-in sessions (McKean et al., 2022, McKean and Reilly, 2023).

These recommendations regarding how to determine the level of support provided are based on a large body of research with respect to the nature of language trajectories and risk factors for persisting language difficulties. It is beyond the scope of this report to provide a detailed review and synthesis of this evidence. An evidence-based model of surveillance and prevention is described in detail in McKean and Reilly (2023), and Reilly and McKean (2023) and we refer readers to those publications. Further evidence underpinning these suggestions can also be found in Bishop et al (2016, 2017), Law et al (2017b), Law, Reilly, McKean (2022).

Conclusions

Although efforts were made to identify all relevant tools and publications to evaluate those tools, within a rapid review framework some may be missed. Grey literature sources evaluating the tools were not included; however, publishers and authors were contacted to incorporate any evaluations available in the public domain. While we cannot ensure complete comprehensiveness, this review is thought to consider the majority of available tools and relevant available evidence.

The following conclusions represent the practical implications of the evidence described and synthesised in the rapid review.

A holistic approach

- Identification of children with stammering, speech, and language needs in this age range (0-5) will always be inexact. Universal Quality First teaching is vital to ensure that any children who have stammering, speech or language needs and are ‘missed’ will still benefit from language-enriching environments, interactions, and opportunities.
- Monitoring children’s speech and language development, including the identification of needs such as stammering, is a core component of quality universal provision.
- A holistic approach to assessment, considering the following additional factors, would support the identification of children with stammering, speech, or language needs:
    - The child’s communication in usual daily interactions;
    - Parents and caregivers' knowledge of the child;
    - The child’s progress against usual developmental milestones;

    - How the child responds to additional support and their developmental progress over time;
    - How any difficulties affect the child's participation and inclusion in education, and social interaction;
    - The child's mental health and well-being;
    - The presence of additional risk factors; and
    - The views of other professionals who know the child and family.
- The use of robust assessment tools, interpreted in conjunction with the holistic knowledge described previously, is recommended to support valid and reliable judgements about children's speech and language abilities and help identify those who will benefit from targeted or specialist support. However, such tools are not available for all aspects of stammering, speech, and language needs, or at all ages.
- Using a combination of different tools is likely necessary to address the diverse needs of children in early years settings, to ensure that the most reliable tools are utilised to best match the age and characteristics of the children in their care.
- Familiarity with referral criteria and guidelines of local speech and language therapy services will help support early years settings to identify and support children with needs and mobilise available resource across the early years workforce.
- The development of clear and accessible referral criteria and guidance by speech and language therapy service in partnership with local early years services and health visitor teams will facilitate referral and collaborative processes.
- A child's response to additional targeted support offers valuable insights regarding the likely persistence and severity of their difficulties. Discussions between early years settings and local speech and language therapy services regarding targeted support will support monitoring of children to ensure they are referred to speech and language therapy should they not make relevant progress.

Stammering

- No validated or reliable measures were identified in this review that are currently available for use by early years practitioners to assist in the identification of stammering.
- The WellComm tool offers a clear and helpful description of the overt speech characteristics of stammering for practitioners, along with guidance as to when to refer to an SLT. However, it has not been evaluated to determine whether the use

of its stammering guidelines result in appropriate identification or decisions regarding onward referral.

- Stammering can be reliably identified by early years practitioners and parents or caregivers. However, children's stammering can be variable. If stammering is noticed, it is important for early years practitioners to discuss with parents and caregivers to explore their perceptions.
- Reliability in identifying stammering can be improved via short training and awareness-raising activities.
- Specialist referral to speech and language therapy may be appropriate when parents or caregivers are concerned; stammering is impacting a child's confidence, ability to communicate or perceptions about their own speech; is impacting their acceptance in their peer group; or the child has additional speech and language needs.

Speech

- Speech needs can be identified by considering how intelligible the child is to others; whether they are using all the sounds expected for their age; and whether any speech difficulties are having an impact on their self-confidence or likelihood to participate in activities.
- Five tools are available for assessing speech and phonological awareness in early years settings, however, many lack comprehensive psychometric evaluation, particularly in UK samples.
- Research suggests that children who remain largely unintelligible to strangers by age 3 years and 6 months, or whose speech is more than 50% unintelligible at age 4, should be referred to speech and language therapy.
- Specialist intervention is essential for all children with a speech sound disorder (SSD). Targeted interventions may include phonological awareness interventions but should not replace referral to speech and language therapy and should be completed alongside SLT-led interventions.

Language

- A greater number of assessment tools are available for children's language development compared to speech and stammering. However, these tools vary in age range, intended purpose and method of assessment. No one tool covers the whole age range (0-5), and purposes required for implementing a tiered models across the early years. The most effective approach combines multiple assessment methods, contextualised with insights from early years practitioners and caregivers.

- The psychometric quality of language assessment tools varies widely. While some tools, such as the Sure Start Language Measure (SSLM), demonstrate strong accuracy in identifying needs, others lack robust validation, particularly in UK populations. Tools such as the BPVS III, Infant/Reception Language Link, and Language Screen are psychometrically robust and are useful at measuring progress and response to intervention but their accuracy in identifying needs is unclear. The review highlights the need for comprehensive, multi-method assessment approaches rather than relying on a single tool or threshold.
- Red, Amber Green (RAG) ratings or centile scores produced by any assessment tools must be considered alongside holistic information, especially for children falling just above or below cut points. This is due to less-than-optimal sensitivity and specificity of tools, changes in children's language difficulties over time, and individual differences in the impact of language difficulties on their social and educational participation and mental health.
- Research suggests referral to speech and language therapy for children aged 36 months or older with significant language difficulties that impact their daily interactions. For children between 12 and 36 months, referral should be considered if parents or caregivers express strong concerns, the child has limited gestures, responses to speech, or understanding, or if previously acquired language or communication skills have been lost. Additionally, referral is appropriate when local speech and language therapy criteria are met, when a child has made limited progress with targeted support, or when parents remain highly concerned about their child's development.
- Targeted support is suggested where moderate language difficulties are present, when parents are not overly concerned, there are few additional risks present, and the child does not meet the criteria for referral to the local speech and language therapy service. When a child has been referred to speech and language therapy but is waiting for assessment, targeted intervention can be provided.

Bilingual children

- Discussion with parents and caregivers will enable practitioners to understand the bilingual child's speech and language development in their home language and to monitor progress. If no issues are present in the child's home language, then any difficulties in English may relate to second language learning or EAL.
- Parents and caregivers may find it difficult to make judgements as to whether their child is developing typically in home language especially given that 'typical' bilingual speech and language development differs from monolingual development. A 'wait and see' approach is not recommended if there are concerns and rather SLT advice sought.

- Whether a child is intelligible to strangers who speak home language is a useful indicator of SSD as for monolingual children, and a tool to formalise these judgements is available in 66 languages (ICS). Consideration of the child's communicative participation is also essential, as for monolingual children.
- Stammering may be over-diagnosed in bilingual populations, so if stammering is suspected, discussion with parents/caregivers and an SLT will be necessary to understand whether the behaviours are stammering or more language based.

Training

- For early years practitioners to be able to identify children with stammering, speech or language needs, the provision of assessment tools is not sufficient. To be able to interpret those assessments and synthesise the results with other key information to make appropriate decisions, training is essential. Key components for this include the nature and importance of stammering, speech, and language needs; and partnerships with parents and caregivers.

Future research

Where tools are in widespread use and have high levels of face validity with practitioners but have not been robustly evaluated with respect to their psychometric properties, a programme of work to test and refine them using large representative UK samples and up-to-date test development methods is suggested.

Similarly, tools which fill a specific gap in terms of age range or purpose, but with more limited psychometric evaluation could also be developed and refined (GAPS, ICS, Renfrew Bus Story, SOGS, SPAA-C, UK-CDI, UKBTAT). A priority setting exercise with practitioners regarding key gaps to determine a programme of further development may be beneficial.

Four tools, namely ECAT, NAPA, Progress checker, and Teddy Talk, did not report any psychometric properties. Additionally, SPAA-C reports details regarding its use across languages but reports no other psychometric properties. It is therefore difficult to have confidence in their quality. Where they fill a gap (e.g. NAPA, SPAA-C) or are widely used (e.g. ECAT) then work to evaluate their quality is recommended.

The development of training and resources to support practitioner judgements regarding speech intelligibility, stammering and typical speech and language development, is required with robust evaluation regarding how this feeds through to judgements regarding level of needs.

A key consideration for the need for specialist referral is the degree to which the child's stammering, speech or language needs affect their participation in education and social

relationships. This review did not find any measures suitable for practitioners to make these judgements, highlighting an area for future research.

Whilst some tools have versions adapted for other languages (e.g. ICS, SPAA-C), only one tool, the UKBAT, was found for bilingual children, highlighting a gap in the development of reliable and validated tools for identifying and assessing speech, language, and stammering needs in bilingual children. Additionally, no validated or reliable measures were identified in this review that are currently available for use by early years practitioners to assist in the identification of stammering, highlighting the need for further research and development in this area to support early intervention efforts.

Work package 2: Intervention and support

Introduction

This work package aims to identify effective universal and targeted interventions that early years practitioners can implement to support children's speech and language development and address stammering, speech, and language needs. We define universal and targeted interventions according to child need. Universal interventions are designed to promote robust speech, language, and communication skills for all children. Targeted interventions provide additional support for children who are at risk of speech and language difficulties or are not meeting age-related expectations. These children either do not require referral to speech and language therapy or an SLT has determined that a targeted intervention is appropriate to meet their current needs. Early years practitioners support children's speech and language development through universal and targeted approaches and can work in partnership with SLTs to support specialist interventions.

In addition to identifying universal and targeted interventions, the DfE requested that we also consider what learning may be drawn from specialist-level interventions with respect to the types of approaches which support children's speech and language development or address stammering needs. When using the term approach, we mean an effective component or technique used in the specialist intervention programmes.

Aims

Work package 2: Intervention and support aims to identify different universal and targeted approaches for stammering, speech, and language needs by answering the following research questions.

1. What universal and targeted approaches are effective at addressing stammering, speech, and language needs in the early years?
2. What size of effects do these interventions provide?
3. What interventions are effective at different ages and with different types of speech and language needs?
4. What learning may be drawn from specialist interventions regarding the approaches which support children's speech and language development or address stammering needs?
5. What recommendations for practice flow from this analysis to support early years practitioners to select the most relevant intervention or approach?

Methods

Intervention studies were included in the review if they met the following inclusion criteria:

- Were published in the
    - last 10 years (2013-2023) for language interventions
    - last 20 years (2004-2023) for speech interventions
    - last 20 years (2004-2023) for stammering interventions
- Were a randomised controlled trail (RCT) or quasi-experimental design study
- Relevant for children aged 0-5 (mean age less than 6 years old)
- Published in English
- Suitable for early years practitioners to deliver at the universal or targeted level

The differing date range for the types of need related to the paucity of available evidence. Specialist interventions were also identified meeting the above criteria and analysed separately to extract approaches which may be relevant to universal or targeted support. The research team considered the practices embedded within specialist interventions which, in their judgement, may be possible and safe for early years practitioners to apply. However, these judgements require empirical evaluation and should be considered only alongside guidance from an SLT. Detailed inclusion and exclusion criteria and the broader rationale for the methods are described in the Methodology Report.

We have summarised the characteristics of the interventions using an adaptation of the TIDieR framework (Hoffmann et al., 2014), the effects using the Education Endowment Foundation (EEF) framework methods for interpreting effect sizes (Higgins et al., 2012) and summarised study quality using the (Durán et al., 2016) framework adapted from Cirrin and Gillam (2008) (Shobbrook et al., 2024).

It should be noted that many studies measure multiple outcomes. To summarise in the tables and descriptions here we identify the outcomes with the largest effect, the smallest effect and whether any outcomes were not affected by the intervention. We have calculated effect sizes for all outcomes where reporting detail in the papers made this possible and this detail can be found in the Supplementary Evidence Report.

When selecting interventions, practitioners should consider:

- The level of evidence: We can have greater confidence in an RCT than in a quasi-experimental study.
- The quality of the evidence: We can have more confidence in a study where more quality indicators are met, less in a study where indicators are not met or unclear.

- The size of the effects: Larger effects or more months progress gained by children as a result of the interventions are more desirable (Table 7). However, lower-quality studies can often have larger effects. Therefore, practitioners should also consider the quality of the evidence. A large effect with a low-quality study must be interpreted cautiously. Months progress is taken from the EEF Teaching and Learning Toolkit (Higgins et al., 2012) and must be interpreted cautiously.
- The 'fit' of the intervention to the children: The intervention should bring about improvements in the aspects of stammering, speech, or language needs for which the children need support
- The 'fit' of the intervention to the setting: The intervention should be deliverable by staff in the setting, considering skills, knowledge, capacity, and resources. Settings should ensure any gaps in these are addressed to enable successful implementation.

Table 7. Effect size table and corresponding months of progress and impact

Effect sizes (Hedges' g)	Progress (months)	Impact
-0.05-0.05	0	No or very low
0.06-0.18	1-2	Low
0.19-0.44	3-5	Moderate
0.45-0.69	6-8	High
0.70-1.00	9-12	Very high
1.00+	More than 12	Very high

Findings

Our searches did not identify any universal or targeted interventions that early years practitioners can use specifically to support children who stammer. However, we found two speech-related intervention approaches (key components of broader intervention programmes) suitable for delivery at the universal or targeted level by practitioners. Additionally, we identified 16 language interventions.

We also identified 34 specialist intervention studies: 9 for stammering, 16 for speech, and 9 for language. From these, we extracted approaches which may be relevant to early years practitioner practice, appropriate for non-specialist delivery, at the universal and targeted levels, including 9 stammering approaches, 2 for speech, and 7 for language.

It is important to note that the use of specialist-led interventions as universal or targeted interventions must be considered with caution. For many, we were not able to identify

research that these approaches are also beneficial when delivered by early years practitioners or that they would benefit children without diagnosed needs i.e. that they would benefit a universal population in the same way as they would a child with difficulties. However, some elements of specialist approaches are also evident in universal and targeted studies reviewed here.

The universal, targeted and specialist interventions found from our search are discussed in relation to stammering, then speech, and finally language.

Stammering

No universal or targeted interventions that early years practitioners can use specifically to support children who stammer were found in this review. However, resources identified through expert advice from specialists at the Michael Palin Centre for Stammering that may be useful for early years practitioners to support children who stammer include:

- The Michael Palin Centre for Stammering Resources for teachers, with information about stammering and how to respond when a child or young person is stammering.
- The Michael Palin Centre video entitled "Wait wait I'm not finished yet", a video guide for the educational workforce.
- A Guide To Stammering: For Teachers, by the charity STAMMA. This is a guide for how primary and secondary school teachers can support children who stammer. This is focused on teachers rather than early years settings.
- Video for parents and caregivers entitled 7 Tips for Talking with the Child Who Stutters from the Stuttering Foundation, a non-profit organisation helping those who stutter (stutteringhelp.org)

Three specialist interventions were identified that may inform early years practitioner practice. These interventions require specialist training, but there are elements of two (de Sonneville-Koedoot et al., 2015, Millard et al., 2009) that promote communication styles thought to be helpful for children who stammer who are aged 0-5. Nine strategies that may be included in support for children who stammer, and their parents/carers, which could be implemented by early years practitioners are reported in Table 8, along with the age range where they have been used effectively as part of a specialist intervention. The effectiveness of these individual strategies, outside of the specialist therapy package delivered in its entirety are supported by SLT expert opinion (Cozart and Wilson, 2022) rather than by empirical evidence.

Importantly these are approaches and strategies for communication rather than stammering intervention packages and are limited in terms of available evidence as to their effectiveness. While, by their nature, they are unlikely to cause harm if delivered by

early years practitioners rather than specialists, they must be applied with advice and guidance from a SLT. Further research is needed to check their effectiveness empirically.

Table 8. Specialist stammering approaches or techniques, along with their applicable age ranges in the pre-school years and potential level of support

Specialist approach or technique	Age range (years)	Level of support
Increase knowledge and understanding	1-5	Universal; Targeted
Reduce the pace of speaking	1-5	Universal; Targeted
Listen and respond	1-5	Universal; Targeted
Encourage turn-taking	1-5	Universal; Targeted
Be patient and acknowledge difficulty	1-5	Universal; Targeted
Do not correct stammering	1-5	Universal; Targeted
Build confidence	1-5	Universal; Targeted
Clear rules and boundaries	1-5	Universal; Targeted
Explore pattern and caregiver perspective and engage in shared decision-making about support	1-5	Universal; Targeted

Approaches and strategies from specialist interventions to support children who stammer:

- Increase knowledge and understanding about stammering: There is existing evidence that watching the following video by the Michael Palin Centre entitled "Wait wait I'm not finished yet" increased teachers' knowledge and confidence (Hearne et al., 2020).
- Reduce the pace, speak in an unhurried way, and pause frequently: This strategy gives the child more time to think about what they want to say, and to say what they want to say.
- Give the child time: Allow the child to finish what they are trying to say, without rushing or correcting them. It can be helpful for the child to be relaxed while speaking and not under time pressure.
- Listening fully: Respond to what the child is saying, not how they are saying it. Focus on content. Give the child your attention, focus on the message, show you are listening non-verbally. It is acceptable to let the child know when you do not have time to listen.

- Encourage turn-taking in the environment, both verbally and nonverbally: When a child understands that they will get their turn, it enables them to relax, take the time they need, and give and take turns in conversation.
- Asking questions: Ask one question at a time, give plenty of time to respond, balance the questioning with commenting.
- One-to-one play time: One-to-one time ensures the child experiences communication in a relaxed, non-competitive situation, with the adult's full attention, listening and focus.
- Acknowledging difficulties: If a child is clearly struggling or distressed while stammering, acknowledge that sometimes talking can be difficult, you are listening, and they can take their time while you will wait.
- Do not correct stammered speech or ask the child to repeat what they are saying fluently: It is important not to convey a message that stammering is negative or undesirable as this could lead the child trying to hide their stammer (by avoiding speaking, changing words, developing tension) or developing negative views of themselves as communicators.
- Building confidence: Praise the child's strengths and attempts they make to try new things or build skills.
- Encourage the child to continue to communicate and participate in all their usual speaking contexts.
- Rules and discipline should be the same for children who stammer as other children: Sometimes parents/caregivers or teachers are worried that they will increase the stammering, because children may stammer more if upset or angry, but having clear rules and boundaries is helpful and important for children who stammer.
- Involve parents and caregivers: Explore parent and caregiver perspectives, concerns and experiences and engage in shared decision-making as to the most appropriate form of support, referral or speech and language therapy advice. Speak with parents and caregivers about whether they have noticed stammering, whether they are concerned, and whether they have noticed if the child is upset, avoiding speaking, or changing words. Discuss with the parents and caregivers whether they would like advice from a SLT and, if so, refer to an SLT. If parents are not concerned and the child is unaware or unimpacted by the stammering, a period of monitoring can be appropriate, since stammering often resolves itself.

In summary, the overall lack of evidence of universal and targeted interventions for stammering means there is a clear evidence gap.

Support for bilingual children who stammer

There is no clear guidance for bilingual children who stammer. Specialist stammering interventions have been successfully adapted from English for use in other languages (e.g. de Sonneville-Koedoot et al. (2015)) suggesting the strategies identified can be used for speakers of Languages Other Than English (LOTE). As far as we are aware, there is no evidence that the strategies extracted from specialist interventions summarised could be detrimental for bilingual children. However cross-cultural variability in interaction qualities between adults and children require sensitive consideration. There is no evidence that bilingual children are any more or less likely to stammer, although the stammer may present differently in the different languages due to levels of skill and language requirements in different contexts. This point and the specialist evidence reviewed underscores the need to work closely with parents and caregivers. Practitioners need to ensure their communications with families who are bilingual are accessible, inclusive, and culturally sensitive.

Speech

Two interventions that early years practitioners can use to support speech difficulties were found in this review: Phonological Awareness Training and Speech Recasts (Table 9). As in Work Package 1: Identification and assessment, phonological awareness has been considered within the speech section of Work Package 2.

Table 9. Applicable age ranges in the pre-school years and the level of support for speech interventions

Intervention	Age (years)	Level of support
Phonological Awareness Intervention	3-5	Universal; Targeted
Speech Recasts	3-5	Targeted

Phonological awareness intervention

Phonological awareness refers to the conscious awareness of, and ability to, manipulate or play with sounds in spoken words. Phonological awareness is often an area of need for children with SSD and is delayed in about half to three quarters of English-speaking children with SSD (Broomfield and Dodd, 2004, Rvachew and Grawburg, 2006). A delay is particularly likely if children make structural errors in their speech, such as missing off sounds (Rvachew, 2007), if they make atypical errors not seen in the speech of typically developing children, or if they have poor vocabulary skills (Preston and Edwards, 2010).

Phonological awareness difficulties are persistent over time in SSD (Preston et al., 2013), and place children at risk for low early literacy skills (Rvachew, 2007). Phonological awareness is a key foundational skill for early literacy as learning the alphabetic principle

requires children to segment words and flexibly link sounds to abstract symbols. Phonological awareness skill predicts early reading progress for all children (Hogan et al., 2005). Low phonological awareness skill predicts low literacy skill in children with SSD, particularly for children whose SSD persists to school entry (Hayiou-Thomas et al., 2017).

Phonological awareness intervention for children with SSD effectively improves phonological awareness skills (Roth et al., 2006) and supporting phonological awareness skills in this group improves their literacy outcomes. This appears to hold for all children. Indeed, one UK study found that whole class intervention through Reception and Year 1 reduced the incidence of reading difficulties from 20% in comparison schools to 5% (Shapiro and Solity, 2008), suggesting phonological awareness input is a valuable universal tool through the Reception year.

Phonological awareness intervention has been used with children aged 3-5 years who have SSD as part of successful interventions measuring speech outcomes for children (Gillon, 2005, Tyler et al., 2011) however evidence is not yet available that phonological awareness training is an active ingredient in these interventions (Denne et al., 2005). Certainly though, phonological awareness intervention is a key part of the toolbox for SLTs working with children who have SSD in the UK (Hegarty et al., 2018, Lancaster et al., 2010, Joffe and Pring, 2008, Roulstone et al., 2012) as well as other English-speaking countries such as the USA (Brumbaugh and Smit, 2013) and Australia (McLeod and Baker, 2014, Furlong et al., 2021).

Phonological awareness intervention aims to enhance children's awareness of speech sounds, supporting both speech production and early literacy. Activities include syllable identification, rhyming tasks, and phoneme-level exercises such as sound detection, categorisation, and isolation. Interventions for children with SSD are based on Gillon's Phonological Awareness Training Programme (Gillon, 2008), Gillon's Integrated Phonological Awareness programme (Gillon and McNeil, 2007) or the Newcastle Intervention for Phonological Awareness (Stringer, 2019). While early years practitioners commonly support phonological awareness in structured phonics programmes, their role in delivering these interventions requires formal evaluation.

Interventions can be delivered face-to-face, individually or in small groups (2-3 children), across various settings, including early years settings. Delivery schedules in trials ranged from 90 minutes weekly for eight weeks (Denne, 2005), to two 45-minute sessions weekly for two or three 6-week blocks (Gillon, 2005), and 60-minute sessions twice a week over 12 weeks (Tyler, 2011).

Evidence from two moderate-to-good quality studies (one RCT and one matched-subjects study), both with small sample sizes, suggests that phonological awareness intervention for children with SSDs has the greatest impact on overall phonological

awareness[1] with a very high impact. However, its effect on improving speech accuracy is less clear (Denne et al., 2005).

For full evidence appraisal of quality criteria and summary effect sizes for phonological awareness intervention, please refer to Table B. 1. Evidence appraisal for Phonological Awareness intervention in Appendix B and Table C. 1. Calculated effect sizes using Hedges' g for Phonological Awareness intervention in Appendix C.

Speech Recasts

Speech recasts are used to support children with SSDs by enhancing their awareness of speech and providing clear models of target pronunciation. Evidence supporting this technique demonstrates its effectiveness as a targeted intervention for children with SSDs and expressive language difficulties. Speech recasts could be integrated into daily interactions or used intentionally as a targeted intervention during specific activities, such as shared book reading or one-on-one play.

The included evidence for this approach comes from a study by Yoder et al. (2005), who ran an RCT measuring the effect of the intervention on mean length of utterance and speech intelligibility. Yoder et al. (2005) examined speech and language recasts in children aged 3 to 5 years old.

A speech recast occurs when an adult responds to a child's speech with a near imitation that maintains the original word order, word endings, and vocabulary but provides a clear speech model (Camarata, 1996). For example, if a child says, "This a wion [lion]," the adult might respond, "Yes, a lion" (Yoder et al., 2005). In the study, children in the intervention group participated in child-led, one-on-one play sessions with an interventionist three times a week for six months. When a child's utterance was understood but poorly articulated, the interventionist responded with a speech recast.

Results showed a positive group-level improvement in speech accuracy, particularly among children with lower pre-treatment speech scores (Arizona Articulation Proficiency Score below 46). Speech recasts are widely recommended in speech and language guidance, including resources from Speech and Language UK and the New South Wales government in Australia (McLeod et al., 2020). While the trial was conducted by trained interventionists, this strategy could also be implemented by early years practitioners with appropriate training. Speech recasts require no additional materials and can be delivered face-to-face in any setting, including early years settings. The Yoder et al. (2005) study structured interactions around toys, tailoring the intervention to the child's interests.

[1] Effect size is Hedges' g = 0.87; very high impact; +10 months progress.

Although the trial followed a structured schedule of three 30-minute sessions per week for six months, speech recasts can be integrated more flexibly into daily interactions.

Evidence from a good-quality RCT (Yoder et al., 2005) with a small sample size suggests that when delivered as a targeted intervention, speech recasts significantly improved intelligibility over time, based on author-designed measures. However, this effect was only observed in children with low pre-treatment intelligibility. While the study does not provide sufficient data to calculate effect size, it reports a weak-to-moderate overall effect on intelligibility, including for children with higher pre-treatment intelligibility scores. Full evidence appraisal of the quality criteria for speech recasts is in Table B. 2. Evidence appraisal for Speech Recasts intervention in Appendix B.

Evidence summary of universal and targeted interventions for speech

In summary, for speech interventions, there is moderate-to-good quality evidence that phonological awareness intervention supports the development of phonological awareness in children with speech sound disorders with low-to-very high effects. Additionally, there is good quality evidence that recasting the speech of children with speech sound disorders positively impacts intelligibility. Both interventions are readily available to practitioners for use as these approaches either require no materials (speech recasts) or materials that are readily available to practitioners for free (phonological awareness intervention).

Support for bilingual children's speech

Regarding support for bilingual children, the evidence for the universal and targeted interventions for speech previously discussed (speech recasts and phonological awareness intervention) are drawn from research conducted with samples of monolingual English-speaking children (or a vast majority of monolingual English-speaking children). Based on this, we cannot say that these techniques have proven efficacy for bilingual populations. Notably, phonological awareness development shows considerable sensitivity to the structure of individual spoken languages (Anthony and Francis, 2005, Caravolas and Bruck, 1993) such that bilingual children may show different patterns of strength and need to their monolingual peers. As far as we are aware, there is no evidence that these interventions could be detrimental for bilingual children.

Phonological awareness intervention benefits in home language may transfer to English, although the evidence regarding transfer is not definitive and may depend on the nature of the home language (Soto et al., 2019). However, there is evidence that phonological awareness intervention in home language is not detrimental to English phonological awareness (Soto et al., 2019). In order to support speech and language development in home language and in English and hence retain the cultural, linguistic and cognitive benefits of bilingualism (Pert and Bradley, 2018), current evidence would suggest phonological awareness intervention for bilingual children with speech needs be provided

in both or all languages (Pert, 2023). However, further research is also needed to robustly evaluate effective targeted support for bilingual children's speech.

Learning from specialist speech interventions

Sixteen specialist interventions for speech were identified (Allen, 2013; Baker and McLeod, 2004; Bellon-Harn et al., 2004; Combiths et al., 2019; Crosbie et al., 2005; Dodd et al., 2008; Hart and Gonzalez, 2010; Lancaster et al., 2010; McIntosh and Dodd, 2009; Namasivayam et al., 2021; Rvachew and Matthews, 2019; Smit et al., 2018; Tyler et al., 2006; Rudolph and Wendt, 2014; Flint and Ingham, 2005; Tyler and Lewis, 2005).

Two approaches and strategies from specialist interventions to support children with SSD are discussed, namely auditory bombardment and contrast word procedures. Table 10 provides an overview of these approaches and the age range where they have been used effectively as a specialist intervention. These approaches may be suitable for use by early years practitioners, alongside guidance from an SLT and compassionate consideration of each child's individual needs and wellbeing. Their use at universal or targeted levels requires empirical testing.

Table 10. Specialist speech approaches or techniques, along with their age range within the pre-school years and appropriate level of support for potential non-specialist delivery

Specialist approach or technique	Age range (years)	Level of support
Auditory bombardment	3-5	Targeted
Contrast word procedures	3-5	Targeted

Auditory bombardment

More often than not the origin of a child's SSD is unknown. SSDs can result from difficulties at one or more points in the speech processing and production system, from hearing impairments through to difficulties controlling the muscles of the mouth. Many children with SSD have difficulty accurately representing the sounds of speech in the brain (see Farquharson, 2015 for a review of aetiology).

In a recent systematic review and meta-analysis of studies with children aged 3 to 6 with an SSD of unknown origin, 60 out of 73 studies found some or all children to have a difficulty with speech perception tasks (Hearnshaw et al., 2019). Hearnshaw et al. included a meta-analysis of eight studies that compared children with SSD to typically developing children on tasks where they had to judge whether a sound or word was correctly produced. In all eight studies, the SSD group performed more poorly on these judgement tasks, with seven studies finding a significant difference (Hedge's g = 1.110).

Given the perceptual difficulties faced by children with SSD, it is not surprising that many specialist interventions include an element of speech perception work (Dodd et al., 2008, Lancaster et al., 2010, Rvachew and Matthews, 2019). Activities may include asking children to judge which of two words the SLT has said or asking the child to judge if the SLT has said a word correctly or not. The child then receives immediate, clear feedback to support learning.

Activities that target speech perception are a standard component of specialist support even if not explicitly discussed in research studies. An important element of these activities is that they require the child to listen, but they make no or minimal demands on production. Speech perception activities may also be part of computerised therapy. For example, the Speech Assessment and Interactive Learning System (SAILS) app is a set of listening games developed and evaluated in Canada (Rvachew et al., 1999, Rvachew et al., 2004) which requires children to respond whether a target word has been produced correctly or not. Similar listening games, targeted at the specific speech errors the child makes, are included in SpeechLink.

A key element of SSD interventions is to simply provide children with the opportunity to listen to words that include the speech sounds they find difficult. This technique is called ‘Auditory Bombardment’ (or ‘focused stimulation’) and is explicitly stated as being used in several specialist interventions (c.f. Supplementary Evidence Report) (Hart and Gonzalez, 2010, Lancaster et al., 2010, Tyler et al., 2011, Rudolph and Wendt, 2014, Tyler and Lewis, 2005). We also know from survey studies that this type of perceptual training is used as part of speech sound intervention by UK SLTs (Hegarty et al., 2018, Roulstone et al., 2012).

In Hart & Gonzalez (2010), the adult and child engaged in joint storybook reading, with the adult modelling words for the child that included the sound(s) that that child found difficult. In this case, the story books were designed specifically to target those difficult sounds, but this activity could equally be done with published storybooks that use character names or themes that include a child’s target sounds. This seemingly simple technique is important as children with SSD who undergo perceptual training are better able to learn to use those speech sounds (Shiller and Rochon, 2014). Rvachew and Matthews (2019) state that perceptual training can ‘sharpen knowledge of the auditory target’ (p.3185).

In early years settings, supporting children to listen to the speech sounds they find difficult to produce or use correctly can be integrated into everyday activities such as sharing books or play. Shared book reading using stories with tricky sounds is a particularly useful tool for targeted support if children are known to have difficulties with a specific sound. Children's tricky sounds should be modelled naturally and not exaggerated.

Contrast word procedures

The idea of contrast words uses the same principle as most specialist interventions for SSD; the idea that speech sounds allow children to make contrasts between words with different meanings, like ‘cat’ and ‘hat’. Intervention techniques draw children’s attention to sound contrasts by asking them to produce words that would lose their meaning if a speech sound were made in error. For example, you cannot produce the ‘k’ sound as a ‘h’ if you want to contrast the word ‘cat’ with the word ‘hat’ in a game.

In specialist interventions, this is known as phonological contrast therapy. A similar technique, known as the contrast word procedure (Bellon-Harn et al., 2004, Hart and Gonzalez, 2010) may be suitable for use in early years settings as it is similar to the techniques early years practitioners use in broader teaching and learning. However, this assertion needs to be tested empirically. The contrast word procedure is structured around child-led play or shared book reading. When the child makes a speech sound error, but the adult knows the target word, the adult models two words to give the child an opportunity to address the communication breakdown. For example, if the child says, ‘The boy has a bite’, the adult might say ‘Oh yes, well spotted! But is it a bite or a bike?’. Importantly, if the child is unable to correct their error, the adult simply gives them praise and models the target word.

In the Hart & Gonzalez (2010) study, SLTs engaged in child-led play and shared book reading. They used a combination of contrast words and auditory bombardment to model and cue key words for the child. In Bellon-Harn et al., (2004), sessions were again structured around shared book reading. When children made speech sound errors, the interventionist provided the child with the error form and the intended form, to give them an opportunity to make meaning clear.

The use of contrast words adopts all the theoretical underpinnings of phonological contrast therapy. Importantly though, it allows early years practitioners to work in a child-led way whenever the timetable allows for one-to-one contact and allows for support to be structured around books and activities that the child finds motivating. This approach must be handled sensitively, and children must not be asked to repeat or correct their attempts. If the child shows any signs of frustration the approach is inappropriate for the child at that time.

Language

Sixteen universal and/or targeted interventions to support language in the early years were identified in this review, listed in Table 11.

Table 11. Applicable age ranges in the pre-school years and the level of support for language interventions

Intervention	Age (years)	Level of support
Bridge Made of Stories (Spencer et al., 2020)	4-5	Targeted
Developing Talkers (Zucker et al., 2013, Zucker et al., 2019)	4-5	Universal; Targeted
Dialogic Reading for Mathematical Language (Purpura et al., 2017)	3-5	Universal
Early Talk Boost (Reeves et al., 2018)	3-5	Targeted
Educator-Implemented Storybook Vocabulary Intervention (Vuattoux et al., 2014)	4-5	Targeted
Explicit Vocabulary Instruction (Damhuis et al., 2014)	5	Universal
Happy Talk (Frizelle et al., 2021)	0-5	Targeted
Literate Language Intervention (Phillips et al., 2016)	3-5	Targeted
Nuffield Early Language Intervention (NELI) (West et al., 2021, Fricke et al., 2013a, Fricke et al., 2013b)	4-5	Targeted
NELI Preschool (West et al., 2024)	3-4	Universal; Targeted
Play and Language Intervention (Conner et al., 2014)	1-3	Universal
Preparing Pequeños (Landry et al., 2019)	3-5	Targeted
Read Aloud (Silverman et al., 2013)	3-5	Targeted
Shared Book Reading with Gameplay (Hassinger-Das et al., 2016)	4-5	Universal
Story Friends (Kelley et al., 2020, Kelley et al., 2015)	3-5	Targeted
Talk Boost (Lee and Pring, 2016)	3-5	Targeted

Two interventions that early years practitioners can use to deliver both universal and targeted support to children with language difficulties were found in this review: Developing Talkers and Nuffield Early Language Intervention (NELI) Preschool. A further

four interventions were found designed for universal delivery, namely Dialogic Reading for Mathematical Language; Explicit Vocabulary Instruction; Play and Language Intervention; and Shared Booking Reading with Gameplay. In terms of interventions intended for targeted delivery, 10 interventions were found: Bridge Made of Stories; Early Talk Boost; Educator-Implemented Storybook Vocabulary Intervention; Happy Talk; Literate Language Intervention; Nuffield Early Language Intervention (NELI); Preparing Pequeños; Read Aloud; Story Friends; and Talk Boost. The following describes interventions available for both universal and targeted support, then universal delivery only and finally targeted delivery only. For each intervention we describe the approach, summarise the study findings and appraise the study quality.

Universal and targeted support

Developing Talkers

The Developing Talkers programme is designed to be used by early years practitioners to deliver universal and targeted support to children aged 4-5 years using repeated shared book reading experiences. The intervention is delivered daily over 26 weeks, via whole-class (Tier 1) and small-group (Tier 2) sessions. Evidence for Developing Talkers comes from two RCTs conducted in the USA (Zucker et al 2019; Zucker et al 2013), in which early years practitioners delivered the programme. These studies measured the intervention's impact on expressive and receptive vocabulary as well as listening comprehension. However, further research is needed to determine its generalisability to the UK context.

The intervention focuses on three key areas: academic vocabulary instruction, inferential questioning, and comprehension skills. Lesson delivery included 26 trade books (half narrative and half informational genres) each read three times in whole-group, tier 1 Shared Book Reading sessions. Additional activities extend or reinforce learning in small-group, tier 2 settings. Interactive teaching strategies involve picture vocabulary cards introduced before reading and verbal elaborations during reading. Books include literal and inferential questions, embedded within the text using stickers, and guide discussion. In the initial weeks, teachers reinforce seven comprehension skills through pre-reading guiding questions. Additional optional tier 1 activities, such as retelling, drawing, and writing, further support comprehension.

Tier 2, targeted intervention, involves eighty extensions, designed to deepen knowledge of selected high-mileage vocabulary words or concepts. These activities use five 5 strategies: (1) categorisation of picture cards as a concept sort; (2) examples/non-examples vocabulary picture sorts; (3) acting out vocabulary; (4) asking questions about vocabulary with pictures; and (5) expressive tasks for practicing complex grammar/syntax (e.g., morphemes, pronouns, plurals).

The Developing Talkers programme is delivered by teachers in a classroom setting, using books, picture vocabulary cards, and stickers as key materials. It is implemented face-to-face, with whole-group (tier 1) sessions and small-group (tier 2) sessions. Tier 1 consists of daily 20-minute sessions, while tier 2 provides additional 12-minute sessions for small groups of 3-4 children, delivered over 26 weeks. No individual tailoring is reported, and programme fidelity is monitored using a checklist to track the presence or absence of tier 1 and tier 2 components.

Evidence from two moderate-to-good quality RCTs with large sample sizes suggests that Developing Talkers has its highest effect on taught receptive vocabulary for both universal and targeted delivery[2] (Zucker, 2019). The lowest effect was found for 'exposure-only' vocabulary[3] (words encountered in the texts but not explicitly taught), both based on author-designed outcomes (Zucker, 2019). Effects were strongest for children aged 5-6 years compared to children aged 4-5 years. However, no significant effects were found on standardised measures of vocabulary naming, expressive vocabulary, listening comprehension, or vocabulary fluency (Zucker, 2013; Zucker, 2019). Additionally, a negative effect on vocabulary fluency was observed for children when delivered universally, with the control group scoring higher than the intervention group. For full evidence appraisal of quality criteria and calculated effect sizes for the Developing Talkers intervention, please refer to Table B. 3. Evidence appraisal for Developing Talkers intervention in Appendix B and Table C. 2. Calculated effect sizes using Hedges' g for Developing Talkers intervention in Appendix C, respectively.

Nuffield Early Language Intervention (NELI) Preschool

NELI Preschool is a 20-week scripted language programme that consists of both universal (whole-class) and targeted components for children aged 3-4 years. The programme is designed to enrich children's vocabulary and develop their narrative and active listening skills. It combines class-based language instruction for all children with additional targeted support in small group and individual sessions for children with language difficulties. Evidence for NELI Preschool comes from one UK study in which the intervention is delivered by early years practitioners (West et al., 2024). The study is a rigorous randomised controlled trial measuring the effects of intervention on oral language, vocabulary, and grammar.

The programme revolves around 20 pre-reading books, with a new book introduced each week. It is implemented face-to-face, with daily whole-class sessions lasting 15-20 minutes. Children identified for targeted support participate in three small-group sessions (10-15 minutes each) and one individual session (10 minutes) per week. These sessions

[2] Effect size is Hedges' g = 0.84; very high impact; +10 months progress.
[3] Effect size is Hedges' g = 0.43; moderate impact; +5 months progress.

focus on vocabulary development and narrative skills, encouraging children to retell aspects of the stories. The NELI Preschool programme is delivered by teachers in an early years setting. Training and support for teaching assistants are provided by SLTs and specialist teachers to ensure effective implementation.

Evidence for the NELI Preschool intervention is from one good quality RCT with a large sample size (West et al., 2024). For children receiving the universal intervention the study indicates that the intervention has its highest effect on oral language skills[4] and lowest effect on grammar[5]. When delivered as a targeted intervention for children with lower language scores at the start of the study, the highest effect was for listening comprehension[6] with only a moderate effect and its lowest for grammar[7] and expressive vocabulary[8] with very low effects based on standardised assessment. For full evidence appraisal of quality criteria and calculated effect sizes for the NELI Preschool intervention, please refer to Table B. 4. Evidence appraisal for NELI preschool intervention in Appendix B and Table C. 3. Calculated effect sizes using Hedges' g for NELI Preschool intervention in Appendix C, respectively.

A further fifteen additional effect sizes were reported across various outcomes, with seven moderate (including universal expressive vocabulary, receptive vocabulary, grammar, global language, and listening comprehension, and targeted grammar and narrative), seven low (including universal expressive vocabulary and grammar, and targeted expressive vocabulary, receptive vocabulary, narrative, global language, and grammar), and one very low (targeted expressive vocabulary). For further details, see the Supplementary Evidence Report.

Universal support

Dialogic Reading for Mathematical Language

Dialogic Reading is a universal approach that is widely used to support children's language learning. This intervention uses a dialogic reading framework to focus on terms, concepts, and pictures that involve mathematical language for children. Included evidence for Dialogic Reading for Mathematical Language comes from a USA-based study in which the intervention is delivered by early years practitioners (Purpura et al 2017). The study is a RCT that measures the effects of the intervention on expressive and receptive vocabulary, with a particular focus on mathematical. As the study was

[4] Effect size is Hedges' g = 0.51; high impact; +6 months progress.
[5] Effect size is Hedges' g = 0.01, very low impact; 0 months progress.
[6] Effect size is Hedges' g = 0.37; moderate impact; +5 months progress.
[7] Effects size is Hedge' g = 0.02; very low impact; 0 months progress.
[8] Effect size is Hedges' g = 0.02; very low impact; 0 months progress.

conducted in the USA, further research is required to establish its generalisability to the UK context.

This intervention is based on evidence showing a strong relationship between mathematics and language development in young children. It is designed for children aged 3-5 years and employs a dialogic reading framework to teach mathematical language and explore the connections between mathematical knowledge and vocabulary. The rationale behind this intervention is that mathematical curricula that are rich in interaction are thought to be effective in improving both mathematical and language skills. By integrating mathematical language into daily conversations and storybook reading, the intervention aims to enhance children's understanding of mathematical concepts alongside their language skills.

Children participate in the intervention in small groups, where early years practitioners read with the children using established strategies from prior research. Specifically, the PEER (Prompt, Evaluate, Expand, and Repeat) strategy and CROWD (Completion, Recall, Open-ended, Wh- [what, where, why], and Distancing) prompts are employed during the reading sessions.

Before the intervention begins, practitioners work together to develop a series of questions that are written on note cards. These questions are placed at specific points in each book and are designed to incorporate mathematical language. The questions are intended to either expand upon the existing mathematical language in the story (e.g., “How do we know the girl has more than the boys?”) or to introduce new mathematical concepts where the book may not have provided them (e.g., “Is the bird above or below the tree?”).

As the sessions progress, the prompts become more complex, allowing the children to explore more advanced mathematical language. The process starts with basic questions and simple mathematical comments but gradually deepens to include more challenging discussions and distancing strategies, such as asking children to relate the book's scenarios to their own lives. Practitioners ask these questions at the same points in each book, which helps to reinforce children’s understanding of mathematical concepts.

The Dialogic reading intervention uses six books and note cards with questions and prompts to be delivered by early years practitioners in early years settings. Sessions are conducted face-to-face in groups, with 16-24 sessions lasting 15-20 minutes each, held 2-3 days a week over 8 weeks, totalling approximately 5-8 hours. The intervention follows a set framework, with no specific tailoring for individual children. Fidelity of implementation is monitored by randomly selecting about 33% of the interventionist's audio-recorded sessions to assess whether the preidentified questions and mathematical language are used correctly. The fidelity results for each interventionist show high

adherence[9], indicating that the intervention was generally delivered as intended, with some variation across different practitioners.

Evidence for Dialogic Reading for Mathematical Language is from one good quality RCT with small sample size (Purpura, 2017). The study indicates that the intervention has a high effect on receptive vocabulary[10], based on author-designed assessment suggesting the targeted vocabulary is learned well. There was no significant effect of the intervention on expressive vocabulary, which was measured using standardised assessment, suggesting limited generalisation of learning. For full evidence appraisal of quality criteria and calculated effect sizes for the Dialogic Reading for Mathematical Language intervention, please see Table B. 5. Evidence appraisal for Dialogic Reading for Mathematical Language intervention in Appendix B and Table C. 4. Calculated effect sizes using Hedges' g for Dialogic Reading for Mathematical Language intervention in Appendix C, respectively.

Explicit Vocabulary Instruction

Explicit Vocabulary Instruction is a universal approach designed for children aged 5-7 years, providing direct instruction on vocabulary learning through storybook reading. The intervention focuses on explaining the defining characteristics of target words. Evidence for this approach comes from a RCT conducted in the Netherlands (Damhuis et al., 2014), where the intervention was delivered by the researcher and measured its effect on receptive vocabulary. As the study was conducted outside the UK, further research is needed to assess its generalisability to the UK context.

Delivered in small groups of 3-4 children, the intervention introduces 17 words using explicit instruction, where each word is defined through three sentences and reinforced with a single picture from a picture book. The intervention takes place in a classroom setting, delivered face-to-face by researchers over eight sessions across two weeks, with each session lasting 20-30 minutes. No specific tailoring for individual children is reported, and there is no documented fidelity assessment to determine whether the intervention is consistently implemented as intended.

Evidence for Explicit Vocabulary Instruction comes from a low-to-moderate quality RCT with a small sample size (Damhuis, 2014). The study indicates that the intervention has its highest effect on breadth of vocabulary[11] and lowest effect on depth of vocabulary[12], although this effect is still large, as measured by an author-designed assessment. There

[9] In the study Purpura (2017), fidelity for each interventionist was: 97.4% (Range = 90.9% to 100%, for 26 of 78 total sessions), 89.1% (Range = 72.9% to 100%, for 22 of 65 total sessions), and 78.1% (Range = 56.3% to 100%, for 14 of 42 total sessions).
[10] Effect size is Hedges' g = 0.42; moderate impact; +5 months progress.
[11] Effect size is Hedges' g = 1.58; very high impact; over 12 months progress.
[12] Effect size is Hedges' g = 1.07; very high impact; over 12 months progress.

was no significant effect on receptive vocabulary when measured using a standardised assessment, suggesting that while there are large effects for taught vocabulary there may be limited generalisation of the learning. For full evidence appraisal of quality criteria and calculated effect sizes for the Explicit Vocabulary Instruction intervention, please see Table B. 6. Evidence appraisal for Explicit Vocabulary Instruction intervention in Appendix B and Table C. 5. Calculated effect sizes using Hedges' g for Explicit Vocabulary Instruction intervention in Appendix C, respectively.

Play and Language Intervention

Play and Language Intervention is a universal approach for 2-year-old children, delivered in early years settings over 4 weeks. Evidence for the Play and Language Intervention is from a USA-based study (Conner et al., 2014). Delivered by the researcher, this study is a quasi-experimental trial measuring the effect of intervention on global language, expressive and receptive vocabulary. As the study was conducted in the USA, further research is required to ensure generalisability to the UK context.

Play and Language Intervention is designed to enhance play skills and language development in 2-year-old children through storytelling, modelling, free play, and prompting. It is based on evidence highlighting the importance of play and language development at this early stage. The intervention is delivered in small groups of five within the classroom, incorporating shared book reading alongside themed play activities. Over four weeks, children engage with books and corresponding toy sets, with the first two weeks focusing on a "bedtime" theme and the last two weeks on a "kitchen/grocery store" theme. Each session involves reading a story, introducing a related toy set, modelling play behaviours, and allowing both facilitated and independent playtime before reviewing the session's themes. The intervention was delivered face-to-face by researchers twice a week for a total of eight sessions. Materials include books and toys, with no reported tailoring for individual children. Fidelity is maintained through a checklist completed during each session to ensure adherence to the intervention procedures.

Evidence for Play and Language Intervention comes from a low-quality quasi-experimental study with small sample size (Conner et al., 2014). Full evidence appraisal of the quality criteria for Play and Language Intervention is in Table B. 7. Evidence appraisal for Play and Language intervention in Appendix B. The study indicates that children in the intervention group increased their auditory comprehension, expressive language and overall (global) language from pre-post intervention, as measured by standardised assessment. Additionally, increases in receptive and expressive vocabulary were observed, based on author-designed assessment. However, the evidence paper does not report whether these outcomes are statistically significant or provide corresponding effect sizes, and there is insufficient data to calculate effect sizes.

Shared Book Reading with Gameplay

Shared Book Reading with Gameplay is a universal intervention designed to build vocabulary knowledge in children aged 4-5 years by combining shared book reading strategies with guided play to enhance motivation to learn. The intervention takes place in classroom settings, delivered face-to-face in pairs over two 30-minute sessions within one week. Children listen to one of two books using an enriched book reading method, where ten target words per book (including verbs, nouns, prepositions, adverbs, and adjectives) are explicitly taught.

Learning is reinforced through an author-modified Snakes & Ladders game, where children answer vocabulary-related questions. As the game progresses, questions move from primarily low demand (i.e., recalling story elements) to high demand (i.e., making inferences and predictions based on the story). If children struggle with responses, they receive scaffolded prompts linking words back to the story. Materials include books, reading scripts, a vocabulary game board, and game pieces. The intervention is delivered by researchers, with no reported tailoring for individual children (Hassinger-Das., 2016). Fidelity is assessed through observations or recorded sessions using a checklist, with reported fidelity ranging from 90.4% to 100%, and an overall average of 98% across experimenters[13], ensuring the intervention is delivered as intended.

Evidence for Shared Book Reading with Gameplay comes from a low-to-moderate quality USA-based RCT (Hassinger-Das et al., 2016) with a small sample size. The study found the intervention has its highest effect on taught expressive vocabulary[14] and lowest effect on taught receptive vocabulary[15] although this is also a very large effect, based on a non-standardised assessment. There was no significant effect on broader expressive language skills when measured using an author-designed assessment aligned with specific coding categories (e.g., nouns, functions, gestures, synonyms, contexts). This suggests large but very circumscribed benefits (only to taught vocabulary) and limited generalisation of learning. Additionally, as the study was conducted in the USA, further research is required to ensure generalisability to the UK context. For full evidence appraisal of quality criteria and calculated effect sizes for the Shared Book Reading with Gameplay intervention, please see Table B. 8. Evidence appraisal for Shared Book Reading with Gameplay intervention in Appendix B and Table C. 6. Calculated effect sizes using Hedges' g for Shared Book reading with Gameplay intervention in Appendix C, respectively.

[13] In the study by Hassinger-Das (2016), across experiments, average fidelity was 98%, with a range between 96.5-100%.
[14] Effect size is Hedges' g = 1.49; very high impact; over 12 months progress.
[15] Effect size is Hedges' g = 1.30; very high impact; over 12 months progress.

Targeted support

Bridge Made of Stories

Bridge Made of Stories (Puente de Cuentos) is a dual-language (Spanish-English) targeted (tier 2) intervention designed for children aged 4-5 with low language skills. It is based on the principle that skills learned in one language can transfer to another, supporting bilingual development. The intervention includes whole-class instruction in English alongside small-group sessions in both Spanish and English to reinforce language learning. Evidence for the programme comes from a USA-based RCT (Spencer et al., 2020), which evaluated its impact on expressive and receptive vocabulary as well as narrative language skills. However, further research is needed to assess its effectiveness in a UK context.

The intervention is structured around scripted lessons that follow a consistent format across three units (3 x 12 stories). Each story introduces two target vocabulary words (e.g., rough/áspero). As the units progress, coordinating and subordinating conjunctions are folded into the stories and lessons. During each lesson, the teacher or teaching assistant reads the featured story and then guides the children through a series of activities designed to help them learn the meaning of target words and to retell the stories. Activities include both group responses and individual storytelling exercises, ensuring active participation and reinforcement of narrative skills.

Children participate in a mix of whole-class lessons and targeted small-group sessions. Each week, there are two whole-class lessons in English, two small-group lessons in Spanish, and two small-group lessons in English. To facilitate cross-language transfer, Spanish small-group lessons are conducted before English small-group lessons. Additionally, parents of children receive Spanish-language family engagement activities, which include structured questions and guidance on retelling the stories at home.

The programme provides 36 stories in English and 36 in Spanish, along with accompanying vocabulary images. It is delivered in a classroom setting by teachers through face-to-face instruction. A full implementation consists of 32-40 sessions per block, with three blocks per year, each lasting 8-10 weeks. Fidelity involves observations and checklists of adherence (12 items), responsiveness (3 items and quality (9 items). In the evidence study (Spencer et al., 2020), researchers recorded the fidelity of 21% of large-group lessons, 21% of Spanish small-group lessons, and 17% of English small-group lessons.

A moderate-to-good quality RCT by Spencer et al., (2020) with a moderate sample size suggests that Bridge Made of Stories has its highest effect on taught English receptive

vocabulary[16], based on non-standardised assessment. The intervention has its lowest effect on taught Spanish receptive vocabulary[17] although this was still relatively high. However, there were no significant effects on expressive vocabulary or word structure as measured by standardised assessments, indicating limited generalisation of learning. For full evidence appraisal of quality criteria and calculated effect sizes for the Bridge Made of Stories intervention, please see Table B. 9. Evidence appraisal for Bridge Made of Stories intervention in Appendix B and Table C. 7. Calculated effect sizes using Hedges' g for Bridge Made of Stories intervention in Appendix C, respectively.

The study also reported an additional eight effect sizes across different intervention blocks using various assessments (Spencer et al., 2020). Among these, one was considered as 'very high' (English narrative), while seven were 'high' across multiple areas, including English taught receptive vocabulary and grammar, and Spanish narrative, taught receptive vocabulary, grammar, and narrative. For further details, see the Supplementary Evidence Report.

Early Talk Boost

The Early Talk Boost is a targeted language programme designed for children aged 3-4 years with delayed language development. Developed by ICAN (now Speech and Language UK) in collaboration with Pearson Assessment, it aims to improve children's language and communication skills through structured group sessions delivered by trained practitioners. Evidence for Early Talk Boost comes from a UK-based RCT conducted by Reeves et al. (2018), which measured the intervention's effects on expressive and receptive language.

Early Talk Boost was developed on principles similar to Talk Boost, a language programme which has been shown to help children with delayed language in the early years of school (Lee and Pring, 2016). It focuses on language development through engaging children in activities they enjoy, and interactions with responsive adults who model language. The intervention supports key language skills in a structured sequence, including attention and listening, learning words, and building sentences.

The programme is designed for groups of six to eight children and follows a structured approach to teaching language skills. It incorporates colour coding for sentence building, storytelling to enhance language comprehension, and songs and rhymes to develop phonics. Specially created storybooks featuring recurring characters reinforce learning and are also provided to parents to support language development at home.

[16] Effect size is Hedges' g = 0.93; very high impact; +11 months progress.
[17] Effect size is Hedges' g = 0.46; high impact; +6 months progress.

Early Talk Boost includes various materials such as a manual, planning board, song cards, toys, and a set of eight storybooks. The intervention is delivered by teachers in a classroom setting through face-to-face sessions in small groups. Sessions last 20 minutes and occur three times a week over a nine-week period. While Early Talk Boost provides structured content and materials, no specific adaptations (tailoring) or fidelity measures have been reported to ensure it is delivered as intended.

Evidence for Early Talk Boost is from a low-to-moderate quality RCT with moderate sample size (Reeves et al., 2018). The study indicates that the intervention has its highest effect on receptive language[18] and lowest effect on expressive language[19] based on standardised assessment. However, even the highest effect is considered low impact when measured using the Hedges' g effect size calculation. For full evidence appraisal of quality criteria and calculated effect sizes for the Early Talk Boost intervention, please see Table B. 10. Evidence appraisal for Early Talk Boost intervention in Appendix B and Table C. 8. Calculated effect sizes using Hedges' g for Early Talk Boost intervention in Appendix C, respectively.

Educator-Implemented Storybook Vocabulary Intervention

Educator-Implemented Storybook Vocabulary is a targeted intervention designed for children at-risk of SLCN due to low socio-economic status (SES) backgrounds. The intervention is based on evidence for explicit vocabulary instruction using storybooks and multiple exposures to target vocabulary learning of children aged 4-5 years old. It uses specifically developed storybooks designed to present selected words on multiple occasions to children. The expectation is that children will learn a greater number of word meanings using these storybooks than they would using commercially available books where the exposure of target words may not be as frequent, and the degree of challenge may not be aligned to children's needs. Evidence for the Educator-Implemented Storybook Vocabulary Intervention, comes from a Canadian RCT study (Vuattoux et al, 2014), delivered by early years practitioners. The study measured the effect of the intervention on expressive and receptive vocabulary. As the study was conducted in Canada, further research is required to ensure generalisability to the UK context.

The intervention involves reading each storybook twice over consecutive sessions, with half of the target words taught in the first session and the other half in the second. Before reading, the educator introduces the 'magic words,' asking children to raise their hand upon hearing them. During reading, the educator reinforces these definitions, prompts children to pronounce the words, presents a simple definition of their meaning, and

[18] Effect size is Hedges' g = 0.06; low impact; +1 month progress.
[19] Effect size is Hedges' g = 0.04; very low impact; 0 months progress.

highlights relevant illustrations. Afterward, a recall activity and two verbally mediated tasks encourage children to use and reflect on the meaning of the words.

The programme uses 30 specially developed storybooks and is delivered by teachers in early years settings through face-to-face sessions in small groups. Sessions last 15 minutes and occur four times a week over five months. No reported adaptations were made to tailor the intervention. Fidelity varied, with implementation ranging from 21.3% to 100% (Mean (M)=66.2%). While fidelity for storybook reading was, on average, acceptable (M=75.9%), it was poorer for recall (M=65.1%), discrimination (M=60.9%), and generalisation (M=54.9%). Children's participation and attention were also less than optimal (M=50.0%).

Evidence for Educator-Implemented Storybook Vocabulary is from a good quality RCT with small sample size (Vuattoux et al, 2014). The study indicates that the intervention has a very high effect on composite receptive and expressive language[20], based on author-designed assessment. Standardised formal assessments provide a more robust test of effectiveness and test whether gains are generalised beyond taught items and were not tested in this study. For full evidence appraisal of quality criteria and calculated effect sizes for the Educator-Implemented Storybook Vocabulary intervention, please see Table B. 11. Evidence appraisal for Educator-Implemented Storybook Vocabulary intervention in Appendix B and Table C. 9. Calculated effect sizes using Hedges' g for Educator-Implemented Storybook Vocabulary intervention in Appendix C, respectively.

Happy Talk

Happy Talk is a targeted and manualised language intervention programme that aims to support children between 0-6 years old, living in areas of social disadvantage. Over the course of three terms, SLTs deliver training and coaching to parents, caregivers, and early educators across a range of community settings (such as baby clinics, creches, pre-schools and junior infant classes, which is the first year of primary school). The intervention focuses on core interaction strategies whilst also aiming to create language-rich early years environments. Included evidence for Happy Talk comes from one study conducted in Ireland (Frizelle et al, 2021). The study is a quasi-experimental trial, delivered by SLTs, measuring the effect of the intervention on global expressive and receptive vocabulary.

Parents and caregivers receive training on strategies including modelling, expanding, and commenting, along with information on listening, phonological awareness, and book sharing. Preschool staff are trained in three core interaction skills as well as early literacy and phonological awareness, along with resources for creating language-rich

[20] Effect size is Hedges' g = 1.53; very high impact; more than 12 months progress.

environments and identifying children with speech, language, and communication needs (SLCN). The programme is delivered face-to-face in early years settings, with parents and caregivers receiving 12 one-hour sessions (both in group and individual formats), while early years practitioners attend four sessions, including a 90-minute session and 30 minutes of coaching, with the remaining three sessions' duration unclear. The total programme spans 7 months. Materials include a manual and a standard set of equipment (unspecified in study). There is no reported tailoring of the intervention, and fidelity is assessed through video recordings of sessions, which are independently rated for adherence to specific activities and how sessions are delivered.

The study by Frizelle et al. (2021), a good quality quasi-experimental study with a small-to-moderate sample size, indicated that the Happy Talk intervention has high to moderate effects using an omnibus language standardised test. Its highest effect is on auditory comprehension (receptive language)[21] and the lowest effect on composite expressive and receptive language[22], based on standardised assessment. There was no significant effect of the Happy Talk intervention on expressive language, as measured by standardised assessment. For full evidence appraisal of quality criteria and calculated effect sizes for Happy Talk intervention, please see Table B. 12. Evidence appraisal for Happy Talk intervention in Appendix B and Table C. 10. Calculated effect sizes using Hedges' g for Happy Talk intervention in Appendix C, respectively.

Literate Language Intervention

The Literate Language Intervention (LLI) is a structured, targeted programme designed to enhance language and literacy skills in high-need children aged 3-5 years old who are at risk of academic difficulties due to socio-economic or developmental factors. The intervention is designed to be a pull-out programme during the school day at times chosen by the teacher. Evidence for the intervention comes from a RCT in the USA, where it was delivered by early years practitioners and measured its effect on expressive grammar, expressive language, receptive vocabulary, and listening comprehension (Phillips et al., 2016). However, as the study was conducted in the USA, further research is needed to determine its applicability and generalisability to the UK context.

The approach is a preventative programme aimed at supporting children who may not meet the criteria for individually designed services from an SLT. It targets language skills related to semantics and syntax, including prepositions and prepositional phrases, conjunctions, adverbs, adverbial phrases, and negations. The intervention focuses on both sentence-level and narrative-level understanding of literate language concepts. Designed to be delivered in four 3-week units, four days per week, the programme uses

[21] Effect size is Hedges' g = 0.45; high impact; +5 months progress.
[22] Effect size is Hedges' g = 0.44; moderate impact; +5 months progress.

instructional materials designed for use by early years practitioners without specialised linguistic or clinical expertise.

The intervention involves primary instructional strategies such as repeated modelling, visual supports, and direct instruction of targeted constructions and words. These strategies are embedded within four main activities, and scripted lesson plans guide practitioners in differentiating instruction for individual children. When children struggle with responses, practitioners provide immediate corrective feedback and downward scaffolding. For children who respond correctly, upward extensions are offered, such as asking for complete sentences. Exemplar scaffolding suggestions, including both simplifying (e.g., elicited imitation and forced-choice selection) and challenging scaffolding (e.g., asking children to restate responses in complete sentence or give instructions), are provided in the lesson plans and training.

Materials include scripted lesson plans, with each unit containing the four main elements: an interactive adventure story, instruction on two story-embedded mental-state verb words, activities with manipulative props, and a picture game for review. The intervention is delivered by early years practitioners in early years settings, face-to-face in group settings, with 48 sessions of 20 minutes each, delivered four times a week over 12 weeks (totalling 16 hours). No tailoring is reported for this intervention. Fidelity is supported through live observations of practitioners at least once per unit, followed by feedback sessions, along with ongoing professional development. However, in the evidence study, fidelity observations were lost due to technological issues and are not reported (Phillips et al., 2016).

Evidence from Phillips et al. (2016), a low-to-moderate quality RCT, with moderate sample size, indicates that the LLI has its highest effect on composite language score (receptive and expressive)[23] based on author-designed assessment. Its lowest effect reaching a moderate level of effect was on listening comprehension[24], based on standardised assessment, although this was a moderate effect and suggests generalisation of benefits to broader receptive language skills. There was no significant effect of the intervention on expressive grammar or expressive vocabulary as measured by standardised assessment. For full evidence appraisal of quality criteria and calculated effect sizes for LLI, please see Table B. 13. Evidence appraisal for Literate Language intervention in Appendix B and Table C. 11. Calculated effect sizes using Hedges' g for Literate Language intervention in Appendix C, respectively.

Nuffield Early Language Intervention (NELI)

[23] Effect size is Hedges' g = 0.88; very high impact; +11 months progress.
[24] Effect size is Hedges' g = 0.31; moderate impact; +4 months progress.

The Nuffield Early Language Intervention (NELI) programme is a targeted approach, designed to support schools to identify and support early language difficulties in children aged 4-5 years old. It aims to improve children's vocabulary, develop narrative skills, encourage active listening, and build confidence in independent speaking. This programme consists of fifty-seven 30-minute small group sessions and thirty-seven 15-minute individual sessions over a 20-week period. The intervention is delivered face-to-face, both in groups and individually, with no specific tailoring reported for individual children. Evidence for the NELI programme comes from three UK-based studies, all delivered by early years practitioners (West et al, 2021; Fricke et al 2017; Fricke et al 2013). The studies are three RCTs measuring the effect of NELI on oral language, expressive and receptive vocabulary, grammar, and listening comprehension.

NELI offers an integrated programme incorporating the Language Screen digital assessment to support identification of difficulties and Continuing Professional Development (CPD) training delivered by SLTs and specialist teachers, with mentor support alongside. The NELI website also details a NELI Whole-Class approach; however, published peer-reviewed evidence for this was not available at the time of this report.

Children are taught vocabulary across multiple and repetitive contexts. Narrative skills are targeted by giving children the opportunity to practice taught vocabulary in connected speech, introducing them to key story elements and to the sequencing of events. Within this, practitioners support children's expressive language and grammar. Phonological awareness and letter-sound knowledge activities incorporate taught vocabulary to further consolidate these words. Listening work targets children's active listening skills and incorporates auditory discrimination, memory, and sequencing as well as rhyming activities. Fidelity is monitored by having teaching assistants record the number of group and individual sessions delivered to each child. Additionally, the components of each session may be independently observed and graded on a 5-point scale, with the scale evaluating adherence to the manual instructions (1 = several aspects missing/not satisfactory, 5 = according to manual with very good use of resources, questions, and techniques).

Evidence for NELI is from three good quality RCTs with large sample sizes (West et al, 2021; Fricke et al 2017; Fricke et al 2013). Results indicate that the intervention has moderate to very high effects on most outcomes. As outcomes are replicated across a number of good quality studies, we can have very high confidence in these findings. The intervention has its highest effect on taught expressive vocabulary[25] when delivered over 30-weeks, based on author-designed assessment (Fricke, 2017); and lowest effect on

[25] Effect size is Hedges' g = 1.12; very high impact; more than 12 months progress.

grammar[26] based on standardised assessments (Fricke, 2017; West, 2024). For full evidence appraisal of quality criteria and calculated effect sizes for NELI, please see Table B. 14. Evidence appraisal for Nuffield Early Language intervention in Appendix B and Table C. 12. Calculated effect sizes using Hedges' g for Nuffield Early Language intervention in Appendix C, respectively.

Across all three RCTs, the studies report a further forty-one effect sizes, as multiple outcomes were measured using different assessments. Of these, three are 'very high' (taught expressive vocabulary (x 3 effect sizes), three are 'high' (expressive vocabulary, grammar (x 3 effect sizes) and listening comprehension), twenty-three are 'moderate' (expressive vocabulary (x 7 effect sizes), receptive vocabulary (x 6 effect sizes), grammar (x 3 effect sizes), narrative (x 5 effect sizes), listening comprehension (x 2 effect sizes), and eleven are 'low' (grammar (x 10 effect sizes), narrative). For further details, see the Supplementary Evidence Report.

Preparing Pequeños

Preparing Pequeños is an integrated, small-group, and targeted cognitive instruction programme designed for Dual Language Learners aged 4-5 years who are the farthest behind in their language and literacy development when entering Reception class. Small-group instruction is expected to promote gains based on progress monitoring, individual responsive support, practice, and feedback specific to child needs.

The intervention targets children's oral language, phonological awareness, print knowledge, and maths development, and consists of 90 minutes sessions four times a week for one year. Evidence is based on a sample of Spanish-English bilingual children. The included evidence for Preparing Pequeños comes from a USA-based study, in which the intervention is delivered by early years practitioners (Landry et al, 2019). The study is a randomised controlled trial measuring the effect of intervention on expressive vocabulary, grammar, and phonological awareness in English and Spanish. As the study was conducted in the USA, further research is required to ensure generalisability to the UK context.

The intervention involves instruction that is based primarily on the use of theme-based vocabulary cards and dialogic reading approaches. Teachers use dialogic reading techniques during a 15-minute shared reading activity. Phonological awareness small-group instruction occurs through activities designed to develop sensitivity to rhyme, awareness of words and syllables, and sensitivity to phonemes in the initial position. The first activities are designed to develop awareness of rhyme units, followed by awareness of sound units using compound words, followed by syllabication using bi and multi-

[26] Effect sizes are Hedges' g =0.08 (both); low impact; +1 months progress.

syllabic words, and finishing with identification of initial sound units. Print knowledge instruction targets name recognition and knowledge of letter names and letter sounds, as well as emergent writing. Initial activities are designed to help the child learn to recognise their name in print, whereas later activities are intended to teach letters.

Activities are non-tailored, and are designed around the use of alphabet books, magnetic letters, letter picture cards, small objects with a common initial letter, and other appropriate manipulatives. Small group instruction operates on a rotation basis using two tables for group work and independent 'learning centres' for cognitive activities are set up across the classroom for when children are not taking part in the group work. Classroom teachers are responsible for vocabulary and dialogic small group reading instruction and maths instruction. Paraprofessionals (individuals who support certificated professionals in education settings) are responsible for small-group phonological awareness, phonics, print knowledge, writing, and maths instruction. Literacy or language rotations occur every 15 minutes for 60 minutes, so every group meets with both the teacher (for 15 minutes) and the paraprofessional (for 15 minutes) and completes independent centre activities each day (for 30 minutes).

Fidelity observations of the 90-minute group sessions are conducted to evaluate the quality of both the small-group instructional approach and the classroom management strategies implemented during the lesson. In Year 1, each teacher is observed approximately three times. In Years 2 and 3, coaches conduct fidelity observations seven times per year. Observations are rated on a scale from 1 (low quality) to 6 (high quality).

Evidence for the Preparing Pequeños intervention is from one moderate quality RCT with large sample size (Landry et al, 2019). The study findings indicate that the intervention has its highest effect on phonological awareness[27], a moderate effect, and lowest effect on grammar[28] based on standardised assessments in children's home language (Spanish). There was no effect of the intervention on print awareness in Spanish and basic concepts in English as measured by standardised assessment. For full evidence appraisal of quality criteria and calculated effect sizes for Preparing Pequeños, please see Table B. 15. Evidence appraisal for Preparing Pequeños intervention in Appendix B and Table C. 13. Calculated effect sizes using Hedges' g for Preparing Pequeños intervention in Appendix C, respectively.

Read Aloud

Read Aloud is a targeted vocabulary intervention designed for children aged 3 to 5 years old who are at risk of poor language development. The intervention focuses on shared

[27] Effect size is Hedges' g = 0.30; moderate impact; +4 months progress.
[28] Effect size is Hedges' g = 0.10; low impact; +2 months progress.

storybook reading experiences supported by vocabulary extension activities to enhance children's receptive vocabulary. Evidence for the effectiveness of Read Aloud comes from a single study conducted in the USA (Silverman et al., 2013), in which early years practitioners implemented the intervention. This study, a RCT, measured the impact of the intervention on children's receptive vocabulary. While the findings are promising, further research is needed to determine the generalisability of the results to the UK context.

The Read Aloud intervention is based on evidence supporting the effectiveness of reading storybooks aloud as a context for vocabulary learning. It also draws on research highlighting the importance of high-quality, frequent interactions between children, parents, caregivers, or teachers, for supporting vocabulary development. The goal of the intervention is to improve children's vocabulary through structured 'read alouds' or 'read alouds plus' extension activities.

Read Aloud and Read Aloud Plus both follow the same structured reading protocol, which includes 24 books and 48 target words. Each book is read twice a week over a 12-week period, with sessions lasting approximately 30 minutes. The intervention is organised into three thematic units: food, animals, and transportation. Each theme contains four narrative books and four informational books. Weekly instruction focuses on four target words, two from each of two books.

On day 1 of a book reading, teachers are instructed to introduce the theme, the book's title and author, and preview one or two target vocabulary words during the prereading phase. During the reading, teachers pause approximately five to six times to ask questions and highlight vocabulary. After reading, they define the target words, review them in the context of the story, offer additional examples, and encourage children to act out the words when appropriate. On day 2, teachers review word definitions during prereading and prompt children to say the words. They again pause five to six times during reading to reinforce vocabulary in context, followed by a final review of the words after reading.

The Read Aloud Plus condition includes additional vocabulary reinforcement activities beyond the reading sessions. On Day 2, teachers are asked to create three further opportunities for children to engage with the target words: during morning meeting or circle time; in small-group settings where children draw or write about one of the words; and in voluntary play activities designed to reinforce understanding of another word.

The intervention is delivered by classroom teachers in a group setting, face-to-face. Materials include 24 books and accompanying lesson plans. Over the 12-week period, the programme consists of 48 sessions, each lasting 30 minutes, totalling 24 hours of instruction. No individual tailoring was reported in the study.

Fidelity of implementation is assessed through structured observations, conducted on two occasions during Read Aloud, morning meeting, small-group, and centre time. Observers record whether key elements of the protocol are present (scored as 1) or absent (scored as 0). Fidelity is evaluated before reading (e.g., defining target words), during reading (e.g., discussing target words), and after reading (e.g., reinforcing vocabulary). In the Silverman et al. (2013) study, overall fidelity was 0.76 for the Read Aloud condition and 0.98 for the Read Aloud Plus condition, suggesting a high level of adherence to the protocol.

Evidence from one low-to-moderate quality RCT with a large sample size indicates that Read Aloud brings moderate to high effects (Silverman et al., 2013). It has its highest effect on receptive vocabulary[29] when Read Aloud plus is delivered (including extension activities) and lowest effect on receptive vocabulary[30], although this is still a moderate effect, when Read Aloud is only delivered, based on author-designed assessments. There was no effect of intervention on receptive vocabulary measured by standardised assessment. This suggests that benefits may not generalise significantly to language knowledge which is not taught in the intervention. For full evidence appraisal of quality criteria and calculated effect sizes for Read Aloud, please see Table B. 16. Evidence appraisal for Read Aloud intervention in Appendix B and Table C. 14. Calculated effect sizes using Hedges' g for Read Aloud intervention in Appendix C, respectively.

Story Friends

Story Friends is a targeted vocabulary intervention designed for implementation in early childhood classrooms with children aged 4 to 6 years who demonstrate low language ability. It is delivered by teachers in small group settings over a 13-week period. The programme includes daily classroom-based strategies as well as structured home-based activities. These are designed to extend learning beyond the classroom, with support provided to parents and caregivers to reinforce vocabulary development at home. Evidence supporting the Story Friends programme comes from two studies conducted in the USA (Kelley et al., 2015; Kelley et al., 2020). These include a RCT and a quasi-experimental study, both of which examined the programme's impact on receptive vocabulary. As the studies were conducted in the USA, further research is necessary to assess the programme's generalisability and effectiveness in UK contexts.

Story Friends emphasises repeated exposure, structured review, and practice opportunities both in educational settings and at home. A key strength of the programme is its focus on feasibility, making it suitable for integration into early years education environments. The programme comprises three main components: automated listening

[29] Effect size is Hedges' g = 0.68; high impact; +8 months progress.
[30] Effect size is Hedges' g = 0.44; moderate impact; +5 months progress.

centres, classroom-based strategies, and home strategies. Listening centres involve pre-recorded storybooks embedded with scripted vocabulary lessons. Each book targets four challenging vocabulary words and includes explicit teaching, simple definitions, supportive story contexts, child-friendly examples, and multiple response opportunities. The intervention includes 12 instructional books and three review books.

Classroom strategies support teachers in embedding vocabulary instruction into everyday classroom routines. Home strategies are designed to engage families in vocabulary development by encouraging discussion and use of the target words at home. Parents and caregivers can access a 'virtual classroom' through an app, which provides daily reminders and vocabulary activities. The app also enables teachers to share video clips that extend vocabulary instruction and demonstrate techniques for families to use.

Materials required for the programme are tailored to each component. Listening centre materials include pre-recorded storybooks, headphones, a splinter (for turning pages), and a teacher's manual. Classroom resources include teacher prompt cards, a weekly word chart, and a review board. Home materials include a family training video, stickers, necklaces, family diary forms, and access to the communication app.

The programme combines face-to-face instruction through listening centres in group formats and one-on-one support through classroom and home-based strategies. Listening centre sessions occur three times per week and last approximately 9 to 11 minutes, supplemented by daily classroom activities. The full programme runs over a 13-week period. No tailoring of the programme was reported in the included studies. However, fidelity of implementation is supported by using daily checklists completed by teachers and independent observations of listening centre sessions.

Findings from one good quality RCT by Kelley et al. (2015), with a moderate sample size, indicates that the intervention has a very high effect on taught receptive vocabulary[31] based on author-designed assessment. There was no effect of intervention on language comprehension measured by standardised assessment. Effect sizes from the Kelley et al. (2020) quasi-experimental study report no effect sizes, nor were they able to be calculated. Additionally, no effect of the Story Friends intervention was reported on receptive vocabulary, as measured by standardised assessment, suggesting limited generalisation of learning. For full evidence appraisal of quality criteria and calculated effect sizes for Story Friends, please see Table B. 17. Evidence appraisal for Story Friends intervention in Appendix B and Table C. 15. Calculated effect sizes using Hedges' g for Story Friends intervention in Appendix C, respectively.

[31] Effect size is Hedges' g = 2.62; very high impact; more than 12 months progress.

Talk Boost

Talk Boost is an intervention programme created to support children aged 3 to 7 years who have delayed language development. It was developed by the Communication Trust and ICAN[32], with support from Every Child a Chance Trust. The programme is intended to be implemented by early years practitioners, in early years settings, following training from an SLT. The intervention takes place over a 10-week period and involves both small-group and whole-class sessions. Talk Boost was designed to cover all areas of language appropriate to children aged between 3 and 7 years old with language difficulties, and it is intended to include children with English as an Additional Language (EAL).

Talk Boost was developed based on existing research demonstrating that children from low socio-economic status (SES) areas and backgrounds are more likely to experience delayed language development which persists through education (Locke et al 2002; Law et al 2011). It aims to develop an intervention that could be delivered with minimal support from specialists, thus enabling impact on a wider number of children.

Talk Boost consists of five strands, four of which are implemented in small-group settings and one through whole-class instruction. The intervention targets both receptive and expressive language, focusing on developing vocabulary, sentence construction, and narrative skills. In addition to language development, it also addresses listening, attention, and social interaction. The whole-class activities are designed to embed these language principles into everyday classroom teaching, encouraging consistent use by educators. Additionally, activities for parents and caregivers are also provided to encourage engagement and understanding of how to support language at home. Sessions are conducted face-to-face by teachers or teaching assistants, with group sessions occurring three times a week for 30 minutes each, over a 10-week period. However, the frequency of whole-class activities was not clearly reported.

Materials used in the intervention include picture resources and games. There is no reported tailoring, the approach is designed to be widely applicable. Information on fidelity, how closely the programme is delivered as intended, has not been reported.

Evidence for the effectiveness of Talk Boost includes a good quality RCT with a large sample size conducted by Lee et al. (2016) in the UK, where early years practitioners delivered the intervention. The study measured the effect of the Talk Boost intervention on expressive grammar and narrative language. Findings from this RCT, indicates that Talk Boost can bring about large effects. Its highest effect was on the narrative language

[32] ICAN stands for “I CAN”, a UK-based children’s communication charity that support children with SLCN.

skills of children with EAL in Year 1[33], and its lowest effect was on the expressive grammar skills of children with EAL in Reception class[34], based on standardised assessment.

For monolingual English-speaking children, the Talk Boost intervention's highest effect was on narrative language skills of Reception class children[35] and its lowest effect was on narrative language skills of Year 1 children[36] (and the grammar skills of Reception class and Year 1 children[37]. For full evidence appraisal of quality criteria and calculated effect sizes for Talk Boost, please see Table B. 18. Evidence appraisal for Talk Boost intervention in Appendix B and Table C. 16. Calculated effect sizes using Hedges' g for Talk Boost intervention in Appendix C, respectively. The study by Lee et al. (2016) reports a further thirteen effect sizes as multiple outcomes were measured using different assessments. Of these, one is 'high' (grammar), eight are 'moderate' (grammar (x 6 effect sizes), narrative (x 2 effect sizes)), and four are 'low' (grammar (x 3 effect sizes), narrative). For further details, see the Supplementary Evidence Report.

Evidence summary of universal and targeted interventions for language

There is good quality evidence supporting the effectiveness of several language interventions identified in this review, including: NELI, NELI Preschool, Developing Talkers, Educator-Implemented Storybook Vocabulary Intervention, and Talk Boost, all of which are effective with moderate to high effects. Among these, evidence for NELI stands out as the most robust due to the large sample size, repeated validation, and study design. Happy Talk also shows moderate effects and is of good quality, but since it has not been tested in an RCT, and has a relatively small sample size, its findings should be interpreted with caution.

Preparing Pequeños is another intervention with moderate quality evidence and moderate effects. It is particularly notable as one of the few interventions designed specifically for bilingual children. However, it was developed in a USA Spanish-English context, which limits its direct applicability to the UK's bilingual population.

A number of vocabulary-focused interventions have shown moderate to high effect sizes based on good quality evidence. Namely, Dialogic Reading for Mathematical Language, Bridge Made of Stories, Story Friends, and Read Aloud. However, these effects are primarily seen in researcher-created measures rather than standardised tests,

[33] Effect size is Hedges' g = 0.79; very high impact; +12 months progress.
[34] Effect size is Hedges' g = 0.02; very low impact; +0 months progress.
[35] Effect size is Hedges' g = 0.58; high impact; +7 months progress.
[36] Effect size is Hedges' g = 0.04; very low impact; +0 months progress.
[37] Effect size is Hedges' g = 0.04; very low impact; +0 months progress.

suggesting the learning is not generalised to wider language gains than the vocabulary taught in the intervention.

Some other interventions, such as Explicit Vocabulary Instruction, Play and Language Intervention, Shared Book Reading with Gameplay, Early Talk Boost, and Literate Language Intervention, have only been evaluated in lower quality studies. As a result, confidence in their effectiveness currently remains low, and further research is required to test them more robustly.

In terms of availability, not all interventions are readily accessible to practitioners for use. The transition from research to practice is often hindered by a lack of availability of interventions with proven efficacy in a form which enables practitioners to utilise them. Additionally, some interventions have been developed outside the UK and may require adaptation to suit UK educational and linguistic contexts. Table 12 summarises where universal and targeted interventions for language were developed, along with their availability.

Table 12. Country where the universal and targeted language interventions were developed and their availability for use in practice

Intervention	Country where intervention was developed	Availability
Bridge Made of Stories	USA	Not yet available, publication of programme is planned as component of Story Champs Curriculum
Developing Talkers	USA	Unable to determine availability
Dialogic Reading for Mathematical Language	USA	Stimulus books available for purchase.
Early Talk Boost	UK	Available for purchase
Educator-Implemented Storybook Vocabulary Intervention	Canada	Unable to determine availability
Explicit Vocabulary Instruction	Netherlands	Unable to determine availability
Happy Talk	Ireland	Training and roll-out programme currently in development and being evaluated in an RCT

Intervention	Country where intervention was developed	Availability
Literate Language Intervention	USA	Not available, research protocol only
Nuffield Early Language Intervention (NELI)	UK	Available for purchase
NELI Preschool	UK	Available for purchase
Play and Language Intervention	USA	Unable to determine availability
Preparing Pequeños	USA	The English-only version (Literacy Express) is available for purchase via the authors
Read Aloud	USA	Unable to determine availability
Shared Book Reading with Gameplay	USA	Not available, research protocol only
Story Friends	USA	Available for purchase
Talk Boost	UK	Available for purchase

Support for bilingual children's language

Bilingual children acquire skills in more than one language at varying degrees of proficiency throughout their early years. For many, proficiency in primary and secondary (or multiple) languages will differ as they experience different patterns of language exposure via interactions with their home and wider environment, including early years settings. Proficiency may vary between understanding and use of language, or between oral and written language skills; however, this does not mean that bilingual children are any more likely to develop speech and language needs compared to monolingual peers (RCSLT, 2006). A child should be regarded as bilingual regardless of the relative proficiency of languages they understand or use (Stow and Pert, 2015).

Interventions for children who are bilingual should include support in their home language. This protects the cultural, cognitive, and academic advantage of bilingualism, and ensures the child remains connected with their heritage language community, including grandparents and wider family (Pert and Bradley, 2018). Gains in home language will make learning English as an additional language easier for the child (Nair et al., 2023). This home language support could be achieved through partnership with parents and caregivers, home-language-speaking practitioners, and the involvement of interpreters (Pert, 2023).

Seven of the universal and targeted language interventions identified in this review explicitly include bilingual children in their evaluation sample suggesting they could be beneficial to bilingual children. Namely, Bridge Made of Stories, Developing Talkers, NELI, NELI Preschool, Preparing Pequeños, Read Aloud, and Talk Boost. However, few of these interventions provide home language support (only reported in Bridge Made of Stories and Preparing Pequeños). Rather, the majority focus only on English (i.e. NELI, NELI Preschool, Talk Boost) and measure only English outcomes.

The interventions identified for supporting bilingual children incorporate many of the same strategies used in universal and targeted language support for monolingual English-speaking children. These include explicit instruction, use of questions and prompts, repetition, and visual aids such as picture cards. They also provide opportunities for retelling, oral language practice, and shared or dialogic book reading. Such strategies create rich, interactive learning environments and are all tools that early years practitioners can embed into everyday practice to support language development in bilingual children.

What distinguishes these interventions is their emphasis on providing bilingual children with multiple and varied language learning opportunities. This includes combining different instructional techniques and engaging stimuli to enhance language acquisition in both English and the child's home language. However, to maximise their effectiveness and cultural relevance, it is considered best practice to supplement these interventions with opportunities for children to experience language learning in their home language.

This can be achieved through active involvement of parents or caregivers, the inclusion of bilingual early years practitioners, or the use of interpreters. A dual language approach, where both English and the home language are used, has been shown to be possible and beneficial. This is exemplified by interventions like Preparing Pequeños and Bridge Made of Stories, which are delivered in both Spanish and English in the US. However, this particular cultural context is not mirrored in the UK where it would be much more challenging in early years settings with a wide variety of home languages.

Early years settings should provide a rich universal language learning environment, including the provision of home language and dual language books where culturally appropriate and maximising home language exposure opportunities wherever possible throughout the day and in partnership with parents and caregivers. As part of this, practitioners should be aware that many bilingual children may use codeswitching. Codeswitching refers to the practice of switching between languages within a sentence to convey meaning (Myers-Scotton, 2006).

A child may not know (and should not be expected to know) all words in both languages at any given time. During interventions and throughout all interactions, early years practitioners should be careful not to interpret codeswitching as mistakes or difficulties or

respond by correcting the child. This may overlook the child's intended expression of meaning, and can make them feel unheard, affecting their self-esteem and confidence and their language development (Stow and Pert, 2015).

Learning from specialist language interventions

Nine specialist interventions for language were also identified (Dawes et al., 2019, Fey et al., 2017, Karaaslan et al., 2013, Restrepo et al., 2013, Roden et al., 2019, Smith-Lock et al., 2015, Trebacz et al., 2023, Washington and Warr-Leeper, 2013, Wilcox et al., 2020).

These specialist interventions are designed to be delivered or overseen by an SLT and are aimed at supporting children with specific identified language needs. Therefore, it is not recommended for them to be delivered independently by other professionals. As stated for speech and stammering, any such learning must be interpreted with caution. The research team considered the practices embedded within specialist interventions which, in their judgement, may be possible and safe for early years practitioners to apply. Thus, seven approaches and strategies from specialist interventions to support children with their language are discussed. Table 13 provides an overview of these approaches and the age range where they have been used effectively as a specialist intervention. Importantly, these judgements require empirical evaluation and should be considered only alongside guidance from an SLT.

Table 13. Specialist language approaches or techniques, along with their applicable age range within the pre-school period and level of support for potential non-specialist delivery

Specialist approach or technique	Age range (years)	Level of support
Shared/dialogic book reading	4-5	Universal; Targeted
Explicit instruction	3-5	Universal; Targeted
Responsive interaction	0-5	Universal; Targeted
Modelling	0-5	Universal; Targeted
Use of questions and prompts	1-5	Universal; Targeted
Vocabulary repetition, expansion, and recasting	3-5	Universal; Targeted
Structured language learning opportunities	0-5	Universal; Targeted

Across this evidence, there are components of specialist interventions that also appear within universal interventions for language. These components may be considered useful strategies for supporting children's language and communication at a universal or

targeted level. However, rather than being considered as a menu of options, it is more helpful to view them as key components of language-enriching early years environments.

Justice (2004) provides guidance tailored specifically to early years practitioners to support the provision of language-enriching environments in early years settings. It suggests that high-quality language input includes: (1) diverse and varied language content, vocabulary, sentence structures, and functions; (2) frequent, consistent, and responsive interactions with adults; and (3) repeated exposure to key vocabulary and language structures.

The second of these principles (frequent, consistent, and responsive interactions with adults) highlights certain qualities of adult-child interaction that support language learning. Children learn language through interaction with others. The nature or quality of that interaction matters. The more frequently and consistently children engage in interactions with others with those particular qualities, the more robust their language development will be (Rowe and Snow, 2020). This type of interaction is often termed Responsive-contingent interaction. A responsive adult is not directive of a child's attention but follows the child's lead, watching and listening carefully for communication and responding promptly to the child's communicative attempts with language relating to the child's focus of attention. They are also responsive to the child's developmental level so the language they use within the child's Zone of Proximal Development – the gap between what a child can do on their own and what they can potentially do with support and assistance – meaning being one step ahead of the child's development. For example, if a child is using single words (e.g. cup), the adult will use two words together to model to the child (e.g. Luna's cup or red cup).

Rowe and Snow (2020) present a valuable framework describing the dimensions of adult-child interaction which have been shown to be important to language development and how the qualities of each dimension need to change over development to support optimal progress for children.

- Dimension 1: Interactive - features such as responsiveness, joint attention, focusing on the child's interests and encouraging active involvement.
- Dimension 2: Linguistic - features relating to the vocabulary and grammar used by the adult and moving from the repetition of key words, through to longer sentences, and increasing grammatical and discourse complexity.
- Dimension 3: Conceptual - relates to the content and meaning of the conversations moving from present and familiar objects and events to more abstract topics (past, present, hypothetical) for older children.

Within the specialist interventions reviewed by the research team, there are a number of key components of language-enriching early years environments. These include:

- Responsive-contingent interaction (Fey et al., 2017); (Karaaslan et al., 2013)
- Shared and dialogic book reading (Dawes et al., 2019); (Restrepo et al., 2013)
- Explicit instruction (Wilcox et al., 2020)
- Modelling (Dawes et al., 2019); (Smith-Lock et al., 2015); (Trebacz et al., 2023) (Wilcox et al., 2020)
- Open and inferential questions and prompts (Dawes et al., 2019); (Fey et al., 2013) (Fey, 1986); (Smith-Lock et al., 2015)
- Repetition, recasts, and expansions (Fey et al., 2013); (Restrepo et al., 2013); (Smith-Lock et al., 2015); (Trebacz et al., 2023); (Wilcox et al., 2020)
- Structured language learning opportunities (Trebacz et al., 2023); (Wilcox et al., 2020)

The details of these approaches are described in the Supplementary Evidence Report. These approaches are not mutually exclusive in content, and many include overlapping techniques (e.g. modelling and recasting; dialogic book reading; and open and inferential questions and prompts).

For these language enriching environments to be enacted in early years settings, early years practitioners must be intentional and deliberate about the language they choose and the contexts within which they use it. To support this, planning should articulate which content, form and use might be used by the early years practitioner in an activity and prompts for early educators provided (e.g. a summary card in a game box, a small poster on the wall of the home corner) to keep high-quality language ‘front of mind’. (Justice, 2004).

Audit tools can support early years settings to monitor the degree to which they are providing language-enriching early years environments and identify goals for quality improvement (Law et al, 2019). For example, the Communication Supporting Classrooms Observation Tool (CSCOT) (Dockrell et al, 2012) is a valid and reliable tool that settings can use to audit their provision.

Ensuring all practitioners and settings are equipped to provide such environments is a fundamental priority for universal, Quality First teaching. It is essential to note that changing early years practitioner practice, particularly with respect to the qualities of interactions, is not simple and requires models of professional development, including coaching, peer support, and ongoing collaborative practice (see Work Package 3: Working together). Programmes do exist to promote behaviour change through these types of support but did not fall within the parameters of this review. Notable programmes with varying stages evidence available and ongoing evaluation include Learning

Language and Loving it (Girolametto et al, 2003); Talking Time (Dockrell et al, 2023) and Coaching Early Conversations, Interaction and Language (CECIL) (Barbour, 2022).

Conclusions

Although efforts were made to identify all relevant interventions, within a rapid review framework some may be missed. Furthermore, some relevant interventions may have publications which fall just outside of the relevant time frame chosen for inclusion. While we cannot guarantee complete comprehensiveness, this review is thought to consider the large majority of available interventions and their relevant evidence appraised. We are aware of a number of ongoing evaluations by the Education Endowment Fund (EEF) and encourage ongoing engagement with their publications as new evidence emerges.

The following conclusions represent the practical implications of the evidence described and synthesised in Work Package 2: Intervention and support. This review aims to provide early years practitioners with guidance regarding evidence-based universal and targeted approaches to supporting children with stammering, speech, and language needs across the 0-5 years age range. It is recommended that practitioners use approaches with robust supporting evidence wherever possible to ensure optimal outcomes for children. However, it is clear that a number of gaps remain in the available evidence and so, recommendations for future research also follow.

Prioritising universal support

- Ensuring effective, 'Quality First' universal support should be a priority in early years settings, as it supports all children to reach their potential in speech and language development. Strong universal provision can also help prevent poor outcomes for children with specific needs, such as those who stammer.

In addition to supporting general development, high-quality universal provision acts as a safety net. It benefits children who may have unidentified language needs by offering a language-rich environment. Moreover, it can serve as an early indicator of need, signalling when a child fails to make expected progress despite when provided with an enriching environment. Key components of high-quality universal provision include:

- Enriching physical and social environments, offering varied learning opportunities and high-quality adult-child interactions.
- Intentional and deliberate planning and implementation of strategies to enable high-quality input including, engaging frequently and consistently in responsive interactions with adults; hearing high-quality language models with recurrence and repetitions of key vocabulary and structures; and hearing diverse and varied input with respect to its content and vocabulary, form, and sentence structures, and use or functional purpose.

- Evidence-based approaches that enhance language development in a Universal setting include:
    - Shared or dialogic book reading
    - Structured language learning opportunities
    - Explicit instruction, covering vocabulary, phonological awareness, and narrative structure
    - Language-supporting prompts and questions
- Regular audits of universal provision can help maintain and improve the quality of support. Tools like the Communication Supporting Classrooms Observation Tool (CSCOT) is freely available and useful for evaluating speech and language-enriching characteristics. These audits can also form the basis for action plans when improvements are needed.
- To further embed high-quality language input, early years practitioners should include explicit goals related to language content, form, and use in their planning. Visual aids and prompts (e.g., summary cards in games or posters in role-play areas) can help keep effective language strategies ‘front of mind’ during implementation.
- Having the processes, knowledge, skills, and tools in place to assess children's speech and language skills and monitor progress is an essential component of quality universal provision. Clear, documented processes will support consistent and effective implementation.

Selecting targeted interventions

- A range of universal and targeted interventions for speech, language, and communication needs (SLCN) have been identified, though the strength and quality of evidence varies. Notably, there are currently no available universal or targeted interventions specifically for stammering, while two exist for speech needs and sixteen for language needs.
- For speech development, interventions focusing on phonological awareness and speech recasts have moderate supporting evidence. For language needs, several interventions are backed by strong evidence, including NELI, NELI Preschool, Developing Talkers, the Educator-Implemented Storybook Vocabulary Intervention, Happy Talk (quasi-experimental design), and Talk Boost.
- When implementing interventions, early years practitioners should not dilute, modify, or adapt interventions, as this can significantly reduce their effectiveness (McCartney et al., 2011). The amount, frequency, and consistency with which

interventions were delivered in the research studies identified will likely be required to see changes in children's outcomes.

- Choosing targeted interventions with good supporting evidence that are the best fit to the context and the child's needs will maximise intervention fidelity and child outcomes. Contextual factors to consider when choosing an intervention include staff capacity and skill mix, feasibility and practicality of delivery, training requirements, and developmental appropriateness for the child's age (EEF, 2024).
- There is the potential for harm if support strategies and approaches are not delivered as intended. For example, when using Speech Recasts, the aim is to provide the child with a clear model of the adult target without any additional linguistic input. It is important that early years practitioners do not give the child feedback about the accuracy of their speech or request that they copy the model. Doing so may cause children to feel inadequate or that they have failed, potentially damaging confidence and hindering progress.
- Choosing the correct targeted support relies on identifying whether a child has stammering, speech or language needs. Work Package 1: Identification and assessment provides advice on how to make these judgements, however they are not always straightforward. If practitioners are unsure how best to support a child at the targeted level, or a child is not responding to intervention or support, advice practitioners should seek advice from their local speech and language therapy service. This allows for timely access to specialist input and promotes practitioners ongoing development in applying targeted strategies (see Work Package 3: Working together).
- Children's progress and response to targeted interventions should be carefully and regularly monitored and reviewed to ensure the child is benefiting. If a child is not making progress after targeted support is delivered, this is an indication for specialist referral; it may be that education practitioners can deliver further specialist support in partnership with SLTs.

Supporting specific needs

- Creating cultures within settings such that any and all modes of communication are valued and celebrated and that children with stammering, speech or language needs or differences do not feel stigmatised or excluded can promote optimal inclusion and participation.
- Although the evidence base for compensatory strategies is limited, both professional guidelines and expert practitioner knowledge suggest several useful approaches. These strategies aim to support children's full participation in everyday interactions and learning experiences. Helpful strategies include:

    - Use of gesture by adults when speaking to children
    - Visual timetables and supports to successful communication
    - Strategies to support children to engage in play with peers (Beilinson and Olswang, 2003)
    - Use of clarification strategies such as giving choices, and/or asking children to point and show when communication breaks down
- Early years practitioners should ensure they have a good level of knowledge and understanding about what stammering is, how stammering can impact communication and well-being, and how to support a child who stammers. Providing the incorrect support risks exacerbating the child's difficulties and causing emotional distress. Strategies which support a child who stammers include:
    - Being patient, giving the child time to talk and finish what they are saying
    - Focusing on the content of what the child is saying (rather than whether it is stammered or fluent)
    - Avoid correcting stammered speech or asking the child to repeat what they are saying fluently.

Training

For the best available evidence to be implemented successfully, it is vital that the children's workforce have the appropriate skills and knowledge, confidence, and shared values.

- To provide effective, 'Quality First', universal support for all children, all early years practitioners need relevant knowledge of speech and language development, the qualities of language-enriching environments, and strategies to enable their implementation. To see behaviour changes in the nature of adult-child interactions, coaching is a recommended component of such training.
- Early years practitioners may need tools, skills, and resources to enable them to be critical consumers of the evidence. This may be supported by the evidence overview tables, quality indicators and intervention summaries within this review. However, many practitioners will likely require more 'top-level summaries' to make use of the relevant information in a form which enables them to make evidence-informed judgements about quality.
- Individuals with responsibility for stammering, speech or language support within a setting would benefit from training regarding how to choose interventions considering contextual fit, child's needs, and quality.

Future research

The outcomes of this review have highlighted a gap in the evidence base for universal and targeted interventions for speech and stammering needs, particularly those that can be delivered by non-specialist practitioners. While some interventions exist, much of the current evidence is either more than a decade old, based on lower-quality study designs, or focuses on interventions that require delivery by specialist professionals.

This gap highlights a pressing need for more robust research, particularly Randomised Controlled Trials (RCTs) and quasi-experimental studies, to evaluate the effectiveness of universal and targeted support strategies for speech and stammering that can be implemented by practitioners in everyday early years settings. Strengthening the evidence base in this area will be essential for developing accessible, effective, and scalable support for children with speech and stammering needs.

Although sixteen language interventions were identified in this review, only a few were supported by high-quality evidence. To ensure that children across all ages can access effective support, there is a need for ongoing development and evaluation of both new interventions and those with promising evidence but limited study quality. This work should aim to produce well-designed, evidence-based interventions that are suitable for use in a variety of early years settings, considering the diverse contextual factors and practical constraints faced by practitioners.

Commercialised interventions, such as NELI, NELI Preschool, Talk Boost, and Story Friends, have readily available materials, manuals, guidance, and training offers to support practitioners. However, some interventions included in this review have been supported by RCT or quasi-level evidence but are not commercialised, meaning training and materials for these interventions are unavailable. This constrains the potential choice of interventions available for implementation. To address this, research and development funding is needed for all stages of intervention research, including the final stages focused on implementation and roll-out.

It is not straightforward to create sustained behaviour change within early years settings to enable practitioners to enact practices which support children with stammering, speech, or language needs. Research is needed to develop and evaluate comprehensive training and implementation packages to identify approaches which bring lasting benefits for both settings and children.

Work package 3: Working together

Introduction

To answer the research questions related to working together, a rapid review of peer-reviewed literature and resources published in reports or doctoral theses (known as grey literature) was conducted. The available evidence was limited, and although many localities in the UK work highly collaboratively, such practice knowledge is rarely captured in published reports. Given this, a series of case studies to provide examples of successful working together from practice were also completed.

When considering working together across organisations, it is important to acknowledge how we are defining working together. We are using the following definitions of collaboration, partnership, and parallel working:

- Collaboration is when two or more people with different skills and knowledge work effectively with each other to complete the same piece of work or to achieve the same goal. The work evolves as each person contributes. The arrangement can be informal, and collaborators may change during the work as they start or finish their contribution. Collaborators may not have equal status in the relationship and may not bear the same responsibility for completing the work or achieving the goal.
- Partnership is a more formal arrangement than a collaboration. There is a high level of commitment and an expectation that the partnership will be long lasting. Partners share risk and responsibility and contribute similar levels of expertise and resource. Partnerships may facilitate several different collaborations and have several projects or pieces of work at the same time.
- Parallel working is when the different professionals work separately with the same child/children, each contributing their specialist knowledge. Each professional bears responsibility individually to achieve their goals, which may have been set with no consultation with other professionals. Parents or caregivers may be more involved with each professional in this model. Information about progress is reported from the professional to the educational setting, other involved professionals, and parent/caregiver. There may or may not be a two-way flow of information.

Aims

Work package 3: Working together aims to explore different approaches to working together to support children with stammering, speech, or language needs by addressing the following research questions:

1. What examples are there of different models of collaboration between early years settings with other professionals for identifying and providing support for children's stammering, speech, or language needs. Other professionals include speech and language therapists (SLTs), health visitors, educational psychologists (EPs) as well as parents and caregivers.
2. What recommendations can be made about optimal components and characteristics of collaboration between early years settings, other professionals, and parents and caregivers, to support identification and intervention for children's stammering, speech, or language needs?

Methods

Within the rapid literature review, nine peer-reviewed papers of relevance to working together to support children with stammering, speech and language needs in the early years were identified, along with five 'grey literature' sources. All sources were described with respect to the evidence base, and data extracted and summarised with respect to target cohort characteristics; evidence of knowledge exchange; training content and availability; assessment and intervention content; effectiveness; evidence of sustainability/normalisation; flexibility and tracking through universal, targeted, specialist intervention pathways. Data extraction tables summarising the data for each source can be found in the Supplementary Evidence Report.

For the case studies, interviews were analysed using qualitative framework analysis based on the theoretical domains framework (TDF) (Cane et al., 2012) and mapped onto the COM-B model (Michie et al., 2011). Detailed methods and their rationale are described in detail in the Methodology Report.

The case studies of good practice in working together to support children with speech and language needs in the early years demonstrate that different approaches can be effective. Each locality has different needs, the services are organised differently and the professionals that come together bring different knowledge and expertise. Each approach is unique, yet there are commonalities across them. Localities that aim to develop their own model of working together may find that one of these examples will meet their needs or that parts from each example will best fit their context. Although they were all different origin, development and execution, there are strong common themes between them all.

Participants came from the North East, Midlands, East Anglia, and South of England (Table 14). All speech and language therapy services were part of an NHS Trust. The early years settings were either part of the local authority (2), an Academy Trust (1) or from the private, voluntary, or independent (PVI) sector (2). We interviewed six speech language therapists, two educational psychologists, one early years director, two local authority early years team professionals, and four of the early years settings managers.

The local authorities and speech and language therapy services in the case studies serve large geographical areas and varied socio-economic populations. The following information is taken from the English Indices of Deprivation 2019. At the time of conducting this work, there were 151 upper-tier local authorities. The local authority ranked ‘1’ is the least deprived and the local authority ranked ‘151’ is the most deprived. Wealth is not evenly distributed however, and there are areas of deprivation within large geographical areas.

Within a Local Authority, the proportion of areas (known as Lower-layer Super Output Areas (LSOAs)) that fall into the 10% most deprived nationally are also ranked. The rank of 1 indicated the most deprived. Local authorities that rank 0 have no areas that fall into the 10% most deprived. The lower the score, the more deprived; and likewise, the higher the score, the less deprived.

Table 14. Case study location and indices of deprivation (National Statistics, 2019)

Local Authority	Average IMD Rank/151	Proportion in most 10% deprived Rank/151
Hampshire	136	118
Cambridgeshire	129	112
Northumberland	84	55
Stoke-on-Trent	13	11
Staffordshire	115	105
Sandwell	8	36

The rapid review findings

The important of working together

Within the evidence reviewed, there was a clear motivation for professionals from different organisations to collaborate in supporting children with speech, language, and communication needs (SLCN), as well as their parents and caregivers. In every example of collaborative working, all partners recognised the importance of speech, language, and communication to ensure that every child succeeds in life. Socio-economic disadvantage was highlighted as a significant risk factor (e.g., Gibbard and Smith, 2016; Harmey et al., 2022; Smith et al., 2017). Another crucial factor was the key role of caregivers and the home environment in language development (Harmey et al., 2022; McDonald et al., 2015; Smith et al., 2017).

All studies and reports considered addressing SLCN a priority. Working together helps "to shift speech, language, and communication away from just being seen as an issue for

individual services to being seen as everybody's issue" (EIF, 2020 East Sussex case study, p.8). Professionals across different services in local authorities, whose roles involve interacting with young children and their families, typically have an excellent understanding of local needs, particularly in relation to SLCN and disadvantage. This includes early years services and settings (nurseries, schools, PVIs), speech and language therapy services, educational psychology services, and public health (Public Health England, 2020).

This understanding, coupled with the imperative for a joined-up, multi-agency approach, drives collaboration (Donald et al., 2022; EIF, 2020; McKean et al., 2017a; Hope, 2020; Public Health England, 2020). By working together, professionals are empowered to transform practice through shared knowledge (Harmey et al., 2022), a concept McKean et al. (2017a) refer to as "networked professionalism" (p.31).

How collaboration works: who is involved and what it entails

A range of professionals work with parents and caregivers to facilitate and provide support for children with SLCN. Studies indicate that training and methods of working together are tailored to local needs. Effective collaboration occurs at multiple levels, involving strategic oversight (politicians, commissioners, Heads of Service), professionals working directly with young children and their families, and parents or caregivers. Local structures are necessary to ensure this happens (Donald et al., 2022; EIF, 2020; McKean et al., 2017a; Public Health England, 2020).

For example, East Sussex established an integrated 0-5 Health Child Programme involving health visitors, Children's Centres, family key workers, and Early Communication Support Workers, all operating under a single management structure. Public Health funding was used flexibly to co-fund the service (EIF, 2020). Similarly, Luton Council introduced its "Talking Takes Off" programme as part of its 0–5 years strategy. Universal and tailored training was provided from political and strategic leaders down to early years practitioners, volunteers, and parents/caregivers (Donald et al., 2022, p. 444-45).

Training and resources are frequently developed collaboratively by local authorities (typically early years and School Improvement services), NHS Speech and Language Therapy services, Educational Psychology services, Family Hubs (formerly Children's Centres), early years settings, Health Visitors, and community nursery nurses (Donald et al., 2022; EIF, 2020; Public Health England, 2020). This training covers a variety of interventions and approaches, including modelling, coaching, video reflection, peer-to-peer learning, communities of practice, and shadowing (Grauberg, 2024; EIF, 2020 Kingston case study & Warwickshire case study; Harmey et al., 2022; Hope, 2020; McDonald et al., 2015; Smith et al., 2017; McKean et al., 2023).

Developing a highly skilled early years workforce, including Health Visitors, midwives, and community nursery nurses (EIF, 2020), is essential to effectively identifying developmental delays and providing early intervention. Additionally, upskilling parents and caregivers (Gibbard & Smith, 2016) ensures they understand typical development, recognise potential concerns early (EIF, 2020), and apply language-promoting strategies at home (Kent & McDonald, 2021; McDonald et al., 2015).The adoption of universal approaches alongside increased awareness, knowledge, and training supports the speech, language, and communication development of all children. Crucially, it also helps refine referral processes, ensuring that only children needing specialist support are referred; "the right children, at the right time" (EIF, 2020 East Sussex case study, p.8).

Collaborative services play a vital role in training professionals, equipping caregivers, and ensuring that "joint messages around early speech, language, and communication" are effectively shared (Public Health England, 2020, p.9). By working together, professionals ensure that every child receives the best possible foundation for communication and learning.

Examples of collaboration between SLTs and other professionals working with young children include Talking 2gether (McKean et al., 2023), Launchpad for Language (Grauberg, 2024; McDonald et al., 2015), NNUTS (Hope, 2020), The Language Lead Approach (Kent and McDonald, 2019; Kent and McDonald, 2021; McDonald and Kent, 2022), Language for Life (McKean et al., 2017a), Babytalk Home Visiting (Smith et al., 2017), and Manor Park Talks (Harmey et al., 2022). The focus of training in these examples include:

- Typical language development and key milestones
- Communication-friendly environments
- Identifying and supporting children with language difficulties
- Specific interventions
- Communication strategies
- Language modelling and activities
- Supporting parents, caregivers, and colleagues
- Different interaction styles
- Using screening tools and referral pathways
- Creating communication leads
- The effect of the home environment

Training is frequently co-planned and co-delivered. In Norfolk, for example, early years advisers collaborated with speech and language therapy services to deliver joint training for professionals. Meanwhile, in the Northumbria Healthcare NHS Foundation Trust-Newcastle University's Universal, Targeted and Specialist (NNUTS) framework involved a Knowledge Transfer Partnership Research SLT who worked within an early years setting to provide training and ongoing support to staff.

Working together also extends to caregivers, as evidenced in Talking Takes Off (Donald et al., 2022), The Enhanced Parent-Based Intervention (Gibbard & Smith, 2016), and Talking 2gether (McKean et al., 2023). These programmes aim to empower parents by raising their confidence, improving their understanding of SLCN, and providing them with practical strategies to support language development at home. Several initiatives co-produce resources with parents/caregivers, ensuring accessibility. For example, the "Just One Norfolk" Healthy Child Programme digital platform was designed with input from parents to accommodate low literacy levels and multiple languages (EIF, 2020 Norfolk case study, p.11)

Impact on early years practitioners

The impact of collaborative working on early years practitioners are predominantly evidenced through surveys and interviews, which capture self-reported experiences. One study (McDonald et al., 2015) systematically videoed practitioners working with SLTs and early years specialist teachers, analysing interactions using a fidelity tool (CRAFT). While the study found notable improvements in two communication-facilitating strategies, there were no significant changes in language modelling or a reduction in conversation-hindering behaviours. More experienced practitioners showed the most change, albeit modest. Self-reported survey data indicated increases in practitioner confidence, with scores improving from a median of 3 to 8 out of 10.

Several other studies highlight similar findings regarding improved confidence among early years practitioners engaged in collaborative work (Grauberg, 2024; Public Health England, 2020). The Talking Takes Off programme (Donald et al., 2022) found that survey and interview responses reflected notable increases in practitioner confidence, feelings of empowerment, and a better understanding of the developmental stages of speech, language, and communication. Additionally, practitioners demonstrated improved knowledge of speech, language, and communication, typical child development, and strategies for fostering a communication-friendly environment (Donald et al., 2022; EIF, 2020 Warwickshire case study; McDonald et al., 2015).

Collaboration has also influenced referral patterns. Several studies reported that working together led to more relevant referrals to SLT services (Donald et al., 2022; EIF, 2020 Norfolk case study; Kent & McDonald, 2019; McKean et al., 2023). In the Talking Takes Off project, early years practitioners stated that staff in their settings were now more likely

to work with a child before referring them to an SLT (Donald et al., 2022, p.468). In Norfolk, working together approaches increased settings' capacity to implement evidence-based interventions before referring children for specialist support (EIF, 2020 Norfolk case study, p.5). East Sussex's model, where Early Communication Support Workers led by a Children's Centre teacher supported speech and language development, resulted in almost all referrals to the speech and language therapy service being deemed appropriate (EIF, 2020 East Sussex case study, p.11t). Early years practitioners also valued the opportunity to collaborate in decision-making during referrals (Hope, 2020; Public Health England, 2020).

Beyond direct skill development, collaborative working fosters stronger relationships between early years practitioners and professional partners, peers, and parents. Practitioners develop a better understanding of each other's roles and expertise, enhancing their ability to work together effectively (EIF, 2020; McKean et al., 2017). Knowledge exchange opportunities also emerge. For example, in Doncaster, multi-agency training brought different professions together, enabling collaboration between schools, PVI settings, and Family Hub practitioners (EIF, 2020 Doncaster case study, p.9).

Impact on children aged 0-5 years

Several studies provide evidence of the positive impact of collaborative working on children's speech, language, and communication skills. Improvements were assessed using standardised tools and pre- and post-intervention testing (EIF, 2020; Hope, 2020; Gibbard & Smith, 2016). Sample sizes varied significantly, ranging from 8 children in the Enhanced Parent-Based Intervention (Gibbard & Smith, 2016) to 2,679 children in the Greater Manchester Early Years Speech, Language and Communication Pathway (EIF, 2020).

Commonly used assessment tools to measure improvements, by early years practitioners, included:

- Early Communication Screen (Stoke Speaks Out, EIF, 2020)
- WellComm Screen (Warwickshire-Talking Takes Off/Closing the Gap project, Greater Manchester Early Years Speech, Language and Communication Pathway, EIF, 2020)
- Ages and Stages Questionnaire (ASQ) (Greater Manchester Early Years Speech, Language and Communication Pathway, EIF, 2020)
- Preschool Language Scales 4 UK (PLS 4 UK) (Enhanced Parent-Based Intervention, Gibbard & Smith, 2016)
- British Picture Vocabulary Scale 3 (BPVS 3)

- Early Years Foundation Stage Profile (EYFSP) Development Matters (DfE, 2008
- Diagnostic Evaluation of Articulation and Phonology (DEAP) Diagnostic Screen (Hope, 2020)

Studies with empirical testing consistently demonstrated positive effects, including increased numbers of children meeting expected communication milestones after interventions. Warwickshire-Talking Takes Off project showed an improvement from 18% to 44% in children meeting benchmarks, while those needing specialist referrals dropped from 47% to 24% (EIF, 2020, p.15). The Enhanced Parent-Based Intervention recorded an increase in mean expressive language scores from 75 to 90 (Gibbard & Smith, 2016). The NNUTS programme demonstrated that multi-tiered collaborative working could help children develop language skills sufficiently to no longer be classified as “at risk” (Hope, 2020, p.158).

Qualitative findings also show positive outcomes, including increased happiness (Gibbard & Smith, 2016), confidence (Donald et al., 2022), reduced frustration (Gibbard & Smith, 2016), and improved communication ability (Donald et al., 2022; EIF, 2020 Doncaster case study; McKean, 2023). Additional benefits include children talking more frequently (Gibbard & Smith, 2016; Hussain et al., 2020), an increase in book reading and enjoyment (Hussain et al., 2020), and overall improvements in communication levels (EIF, 2020: Doncaster, East Sussex, Norfolk case studies).

Impact on parents and caregivers

Studies examining the impact of collaborative working on parents and caregivers, primarily through interviews and surveys, highlight several positive outcomes. Parents reported gaining improved knowledge of language development and communication (Donald et al., 2022; Gibbard & Smith, 2016) and a greater awareness of developmental milestones and their child’s difficulties (Gibbard & Smith, 2016). Collaborative training also equipped them with better strategies to support their child's speech and language development, including interactive play and modelling techniques (Donald et al., 2022; Smith et al., 2017).

Additionally, stronger relationships between parents and their children emerged as a result of more frequent interactions and enhanced communication (Gibbard & Smith, 2016). Parents also experienced increased confidence and self-esteem, which positively impacted their social engagement with other parents and children (Donald et al., 2022; Gibbard & Smith, 2016). Engagement with intervention programmes improved, with higher attendance rates linked to collaborative efforts between speech and language therapy services, Children's Centre staff, and caregivers, as seen in the Enhanced Parent-Based Intervention (Gibbard & Smith, 2016). Furthermore, parents expressed that working together helped them feel listened to, empowering them to better advocate for their child’s needs (EIF, 2020 Norfolk case study).

Key characteristics of successful working together

Although no single study in the review provides a detailed blueprint for working together, key characteristics have been identified as contributing to success.

One of the most crucial factors is the relationships developed between partners, built on trust, respect, and open communication (EIF, 2020 Kingston case study; Kent & McDonald, 2019; McDonald & Kent, 2022; McKean et al., 2017a). Several studies highlight the importance of respecting each other's expertise and understanding different roles and contexts. For instance, the Enhanced Parent-Based Intervention (EPBI) in Portsmouth was designed using parents' and caregivers' input. Unlike the original Parent-Based Intervention (PBI), which was solely delivered by NHS SLTs in a health centre, the EPBI was developed collaboratively with Children's Centre teachers and conducted within a Children's Centre setting. The addition of a crèche and home visits significantly improved parents' and caregivers' attendance and engagement (Gibbard & Smith, 2016).

Respecting the contributions of all participants fosters effective collaboration. In the Manor Park Talks project (Harmey et al., 2022), early years practitioners partnered with university researchers to deepen their understanding of SLCN. This approach created a community of practice in which practitioners' expertise was valued equally alongside academic research (p.5). Their feedback led to refinements in strategies, making them more practical for implementation.

While training and short-term interventions are valuable, sustained working relationships require ongoing professional development and knowledge exchange. Providing opportunities for networking and co-constructing professional knowledge ensures continued collaboration and support (McKean et al., 2017a, p.525; EIF, 2020 East Sussex case study). The Coaching Early Conversations, Interaction, and Language project (Grauberg, 2024) found that continuous coaching significantly aided the effective implementation of evidence-based language interventions in early years settings, including in the PVI sector (p.10, Grauberg, 2024). In the NNUTS project (Hope, 2020), an embedded SLT provided ongoing staff support beyond initial training, which teachers found extremely useful in discussing children's needs and making informed decisions (p.102).

Support structures also play a vital role in sustaining collaboration. In East Sussex, Early Communication Support Workers receive training, telephone support, and termly supervision from the Speech and Language Therapy service, funded by Public Health (EIF, 2020 East Sussex case study, p.10). Similarly, Nottinghamshire and Preston models of the Sutton Trust's Coaching Early Conversations project included regular network sessions for early years settings to share practice, engage in peer learning, and access local resources (Grauberg, 2024, p.27).

Strong leadership within early years settings is another key factor in successful collaboration. Senior leaders and managers who actively support joint efforts enable their teams to work effectively (EIF, 2020; Grauberg, 2020; Kent & McDonald, 2021). McKean et al. (2017) emphasise the importance of "empowering leadership," which provides staff with the autonomy to negotiate and take action (p.521). Leadership also plays a role in ensuring practitioners have the necessary time and resources for collaborative activities, such as attending meetings, networking events, and training sessions (McDonald & Kent, 2022).

A shared commitment to norms and values, with children at the centre of collaboration, is another identified characteristic (McKean, 2017). Studies emphasise that staff continuity and low turnover strengthen relationships and embed knowledge effectively (Kent & McDonald, 2021; McKean et al., 2017). Long-term relationships make it easier to bridge professional boundaries, facilitating smoother collaboration (McKean et al., 2017, p.521). Additionally, meaningful parent and caregiver engagement ensures they are active participants in their children's development (Gibbard & Smith, 2016; McKean et al., 2023).

Early years practitioners must also feel a sense of agency and ownership in collaborative efforts (Kent & McDonald, 2021; McKean et al., 2017). Allowing adequate time for effective joint working ensures sustainable outcomes (Kent & McDonald, 2021). Flexibility is also crucial to adapt collaboration to local needs and context (Kent & McDonald, 2021; McKean et al., 2017). This is evidenced in the co-design of training programmes, such as Coaching Early Conversations (Grauberg, 2024) and the bespoke training developed in the Learning Lead Approach (Kent & McDonald, 2021) and Manor Park Talks (Harmey et al., 2022).

Service co-location also strengthens partnerships. In Kingston, SLTs share a base with Health Visitors, offer training, and have set up a shared digital folder for joint resources, information, and advice (EIF, 2020 Kingston case study, p.6).

Barriers to effective collaborative working

Despite the benefits, various barriers can impact the success of collaborative working.

One of the key issues is staff turnover, particularly in nursery and PVI settings, alongside staff sickness (Kent & McDonald, 2021; Grauberg, 2024). High turnover disrupts relationships, consistency in training, and knowledge retention. For example, in the Coaching Early Conversations Merseyside project (Grauberg, 2020), two trained practitioners left before coaching began, undermining programme sustainability.

Lack of time is another challenge, as professionals struggle to balance collaborative work with their existing roles. The Learning Lead Approach (Kent & McDonald, 2021;

McDonald & Kent, 2022) revealed that both SLTs and early years practitioners cited time constraints as a barrier. SLTs found it difficult to balance clinical responsibilities with mentoring duties, while Language Leads reported missing training and networking due to staff shortages (McDonald & Kent, 2022, p.506).

Interviews in studies also revealed that some professionals felt unprepared for collaborative roles. SLTs noted that their clinical training had not fully prepared them for multi-agency collaboration (Kent & McDonald, 2021, p.94). Despite recognising the value of joint working, some participants were required to take on responsibilities beyond their expertise (McDonald & Kent, 2022).

The case study findings

The case studies of good practice in working together to support children with speech and language needs in the early years demonstrate that different approaches can be effective. Each locality has different needs, the services are organised differently and the professionals that come together bring different knowledge and expertise. Each approach is unique, yet there are commonalities across them. Localities that aim to develop their own model of working together may find that one of these examples will meet their needs or that parts from each example will best fit their context.

A summary of the five working together case studies is presented here. Although they were all different origin, development and execution, there are strong common themes between them all.

The aims of working together

The aim of all the examples of working together is to provide timely and good quality support to children with speech and language needs to increase their long-term life chances. Children and parents and caregivers are at the centre of all models of working together.

In areas where the speech and language therapy service engage with the early years settings, there is always at least one named SLT working with the early years settings. Speech and language therapy provided by NHS SLTs is free at the point of access. All the examples of working together in these case studies aim to optimise the NHS speech and language therapy offer by integrating speech and language goals into the early years settings daily routine. Importantly, some speech and language therapy services in England only engage with referred children, meaning opportunities to utilise resources in early years settings could be currently missed.

Leadership

In most cases, the ‘working together’ has been led by senior representatives from at least two of the services involved. When strategic planning occurs at the management level of the organisations working together, there is a better chance that the arrangement will be sustainable over years and even decades. Leadership from the speech and language therapy service manager or a designated lead SLT is crucial for integration of universal, targeted and specialist interventions to make best use of resources.

In the early years settings, the manager, head teacher, or early years director typically lead the strategic planning and co-ordinated implementation. The EP’s input is partly influenced by their statutory duties and the development of Service Level Agreements (SLA) with early years settings. There is one example amongst the case studies of SLT leadership that is also supported by an SLA.

Intervention programmes and tracking progress

All early years settings in the case studies have well trained staff who can confidently implement interventions at universal level. Quality First Teaching was mentioned by some of the early years settings as central to their approach. An enriched language environment is the most common universal intervention. Some early years settings use the CSCOT to measure the quality of the language environment. Makaton is used in some early years settings to support communication.

Some early years settings have targeted interventions that are delivered to small groups or individual children. The children receiving targeted intervention are identified by the early years settings in partnership with parents and caregivers, SLTs and/or EPs following detailed observation and some assessment. There is a mixture of locally and nationally devised interventions, supported by varying degrees of evidence. Interventions include It’s Time to Talk, Time to Listen and It’s More Time to Talk (Stoke Speaks Out); The Big Book of Ideas and Talking Tips (Wellcomm); Talk Boost; Early Talk Boost; Elklan resources; Newcastle Intervention for Phonological Awareness (NIPA); and Colourful Semantics.

Each early years setting was confident of the effectiveness of their interventions because children’s progress and response to intervention is tracked. This tracking is usually a combination of detailed day to day observation and record keeping and periodic assessment or completion of a checklist. For children in Reception Class, the Early Years Foundation Stage (EYFS) Profile is used to track progress. Other sources used to track progress in our case studies are: Development Matters (DfE); What to expect, when? (4Children, supported by DfE); the WellComm screen; and the Stoke Speaks Out Early Communication Screening tool.

Capability: Knowledge and skills

A knowledgeable and skilled workforce will be successful in delivering interventions for children with speech and language needs. A willingness to share knowledge and experience between organisations is fundamental to success.

Shared knowledge is crucial amongst the early years settings and SLTs who are working together to effectively support children with speech and language needs. This shared knowledge includes knowledge of:

- Speech and language development
- Risk factors for speech and language delay or disorder
- How speech and language delay or disorder can be identified
- How effective universal and targeted interventions can be delivered in early years settings within the limits of funding and government policy.

Early years settings and the SLTs who work with them have a good knowledge and understanding of the needs of the local area, its children, and their families. There is shared knowledge about the children between early years settings staff, parents, and caregivers, SLTs, Health Visitors and EPs. Amongst the case studies there are examples of knowledge sharing being mutually beneficial to early years settings and SLTs. The early years settings provide training for SLTs whilst the SLTs provide training for the early years settings staff. The following actions promote this knowledge exchange: spending time with each other, observing each other's practice, discussing children, and planning together.

In some of the case studies there is strategic sharing of knowledge across all professionals who are working with young children and their families. This enables a consistent message about speech and language development for families, irrespective of the service they are accessing. This consistent messaging is reinforced by access to a central source of online information for parents/caregivers. This type of shared knowledge arises out of high-level strategic collaboration.

Training and knowledge of interventions

Early years settings have access to several sources of training. Where there is a structured model of working together in the case studies there is a structured training offer for early years settings at regular times, such as at induction or via termly updates. Examples of this are: Stoke Speaks Out, Sandwell Keeps Talking and the Northumbria Healthcare NHS Foundation Trust-Newcastle University Universal, Targeted and Specialist (NNUTS) Framework. In the case studies, all the early years settings have some bespoke training that is dependent on need identified by the early years setting and/or the SLT or EP. This is usually related to the need of individual children or to

address larger issues that arise. For example: identifying bilingual children who are struggling to learn English as opposed to those who also struggle in their home language.

There are examples of different types of supervision and coaching such as:

- Early years staff observe SLTs or EP sessions
- The SLT and EP will observe the early years setting staff in practice
- Early years staff meet with individuals or small groups to talk through their practice.

The professionals who run these sessions stressed the importance of valuing the early years settings staff's experience and knowledge of the children. They also stressed the importance of building the early years setting staff's confidence in delivering interventions with clarity.

The early years settings staff also have access to training provided by the speech and language therapy service, educational psychology service, local authority or external provide such as ELKLAN. Some of this training is free but some has to be paid for.

Knowledge of when and how to refer for specialist support

The universal and targeted interventions are an opportunity to gather information about the child's difficulties to inform referral to speech and language therapy for specialist input. In the most effective and efficient examples of working together, SLTs worked with the early years settings to support unreferred children through universal and targeted intervention to referral. This effective collaborative working made ensures that referrals to speech and language therapy services were appropriate and that if the referral is appropriate then it is supported by sufficiently detailed information. It also ensures that any specialist input for the referral was provided in a timely manner.

The speech and language therapy services which provided us with information about their offer for children who stammer have fast tracks for these children. In this fast-track pathway, the Health Visitor and early years settings staff know to refer these children and where to signpost parents and caregivers for initial support while the referral is in process. Moreover, within the fast-track pathway children are seen individually for specialist assessment and intervention is needs led, with a focus on developing parent/caregiver knowledge and skills. All SLTs have competence in this scenario with expert supervision and mentoring when required.

Gathering data about children

Each early years setting has an agreed and explicit process for gathering information about children. This ensures that the information is available to all staff working with the

child. It also crucially ensures that consistent support can be provided to the child. Parents/caregivers are always part of this gathering of information about the child. From before they enter the early years settings, children have their data collected so that parental knowledge and any concerns can inform future observations of the child. Learning and developmental trajectories are tracked so that children with additional needs can be identified and supported at an early stage. Most early years settings have an additional record for children who have identified additional need that supports the collection of information for a referral to specialist services. The effectiveness of intervention is also tracked and if children are not progressing as expected this can be quickly identified.

Sharing knowledge with parents and caregivers

Each of the early years settings in these case studies had robust and often multiple ways of communicating with parents/caregivers. The Tapestry online journal was popular with early years settings with its guaranteed confidentiality and option to share information with chosen others. Other observation and progress records are shared with parents/caregivers if their child has additional needs. Person Centred Planning (Hampshire) is an example of parents/caregivers being well prepared and facilitated to engage in information sharing and decision making.

Supporting each other

Effective support for children with speech and language needs relies on good relationships between the people involved, allocated time and easily available resources. Together these provide opportunity to deliver different types of high-quality support.

The individuals involved in the case studies have respect for and value each other's knowledge and skills. There is a good understanding that everyone works better together, and the children are better supported.

Supporting parents and caregivers

Support for parents and caregivers is forefront in all the case studies. Care is taken to ensure parents and caregivers are listened to and supported. There is an example of an early years settings (Stoke) with a Parent Champion Group who work as collaborators with the early years setting, discussing issues that have been raised by parents and caregivers or the early years setting. Some Parent Champions can also act as peer support for other parents/caregivers. Training may be available for parents and caregivers (Sandwell) to help them better support their children.

Resources for universal and targeted interventions

In each of the case study early years settings, resources are available for the delivery of interventions. Early years settings make best use of freely available resources and

strategically plan purchases throughout the year. Early years setting staff may have protected time for planning and delivery of target interventions. However, this will always be a challenge if there are staff absences or vacancies. Most early years settings have a space in the setting for small groups or individuals to receive intervention.

Sustainability

The factors that make the partnership working or collaborations sustainable include:

- Support by the most senior level of management in all involved organisations
- Respectful and open dialogue between all partners
- Well-structured processes for identification of children who need additional support and delivery of the required support
- A service level agreement (SLA) to involve highly specialist input over and above the NHS free offer of speech and language therapy
- Regular reviewing and updating of protocols and processes
- Evidence that the children are improving.

The main threat to sustained partnership working is staff instability and shortages, leading to loss of experience and knowledge about the children and the early years settings. Change to educational priorities and funding may also pose a threat to sustainable partnership working.

Motivation: Confidence and belief

Working together to support children with speech and language needs requires the people involved to have confidence in their knowledge and skills and belief that what they are doing will make a positive difference to the children's speech and language.

In all case studies the early years setting staff were confident in their ability to deliver interventions to a high degree of fidelity or accuracy They were confident when talking to parents and caregivers. Easy access to other early years setting staff and to specialist such as SLTs and EPs for support and to answer questions also increases the early years setting staff's confidence.

In all case studies the degree of mutual trust was excellent. Each individual was confident in the other's ability to solve problems or develop resources or procedures. Each other's knowledge is valued as contributing something to the support for the child. The SLTs are confident that referrals to speech and language therapy are appropriate.

All members of the team around the child are motivated by seeing the child's progress. Therefore, it is crucial that the child's progress is recorded objectively and in detail.

Engaging with parents and caregivers

All the early years settings in the case studies had a good understanding of the needs of parents/caregivers and how to best engage with them. There was a combination of face to face and online contact to keep parents/caregivers updated on their child's progress. Parents/caregivers are involved in all decision making and goal setting for their child. They are provided with training to best support their child at home. The home languages of children are explored by early years settings and valued. Bilingual staff in the early years settings will work with same language families. Where required, interpreters are engaged to enable home language conversations with parents/caregivers.

Conclusions

There are limited studies that provide specific details about the processes involved in working together, making it difficult to replicate these practices. Few studies explore the impacts on children's speech, language, and communication through rigorous testing, with many drawing on the perceptions of parents/caregivers and practitioners and therefore not evidencing any change that may be taking place. The use of interviews and survey data in many studies relies on self-reported perceived impacts, and participants are typically self-selecting. The study by McDonald et al. (2015) highlights one of the limitations of self-reporting. Their analysis of a video recording of an early years practitioner after brief speech and language therapy training (Let's Interact), found 'no meaningful changes in her interaction behaviour', yet the practitioner reported increased confidence in using interaction strategies in practice' (p314). McDonald et al. conclude that 'self-reported changes in skills and confidence are not sufficient to accurately evaluate changes in behaviour following training' (p.314).

The nature of the studies means that sample sizes are often (necessarily) small and group sizes inconsistent, making statistical analysis of the significance of results challenging or even impossible. The grey literature review case studies in particular, whilst providing descriptions and outcomes, do not provide detailed information about methods or exactly how data was collected. Only the PhD thesis of Hope (2020) demonstrated robust data collection in terms of methodology, methods, and findings but detail about the collaborative approach was missing as were the views of practitioners - a limitation identified by the author.

In the majority of the studies reviewed, the authors are aware of these limitations and what Kent and McDonald (2019) describe as the problems that commissioners consequently face when 'clear evidence of the efficacy of an approach is required (p 5).

The following conclusions are synthesised from the 'working together' rapid literature review and case studies. It is clear from the case studies that effective partnership working between speech and language therapy services and early years settings benefit

children with stammering, speech, and/or language needs. This is supported by the findings of the rapid review of the literature. Working together supports services to make best use of available resources to support children with stammering, speech, and language needs. Furthermore, where there is good partnership working between professionals, parents and caregivers are also better supported to understand their child's needs and how they can help.

Types of working together

The approach to working together varied across the literature review and case studies, as they are often constructed to meet their local need. Local needs, resources, and organisations differ in each case, whilst certain elements remain consistent. For example, in some areas, local authorities or multi-academy trusts led the working together for educational settings. While in other local area examples, individual educational settings directly liaise with the speech and language therapy services. Although the structure of the working together and resource sharing differs, the intended outcome remains the same which is to enhance outcomes for children through shared knowledge and resources. Despite the differences in the way services develop working together in different localities, there are similar behavioural outcomes such as: organisations work together, pooling knowledge, experience, and resources, to improve attainment and life chances for children with stammering, speech, and language needs.

Partnership working is most frequently observed between speech and language therapy services, early years settings, and other educational settings (including primary, secondary, and special) to provide integrated support for children with speech and language needs.

Collaborative and parallel working were also observed in all contexts found in the review and the case studies. However, they were more frequently found within education and health services that support aspects of children's development, health, and wellbeing, which overlap with or impact on stammering, speech, and language. Collaboration and parallel working are common with Educational Psychologists; special education provision and teachers of the Deaf; Community Nursing, including Health Visitors and specialist children's nurses; other Allied Health Professionals including Physiotherapists, Occupational Therapists and Audiologists; paediatricians, Ear Nose and Throat (ENT) surgeons, cranio-facial surgeons, and psychiatrists. In all these instances, the SLTs lead on all aspects of stammering, speech, and language, whilst others provide specialist input in their own areas of expertise. This is often for children with more complex needs or disability and includes children whose needs are not identified until later in childhood or adolescence. Consequently, there is little mention of these other professionals in the case studies, where the focus is on children with stammering, and/or speech and language needs in early years settings, rather than specific groups of children with

additional needs. In the literature review, where broader 0-5 services are considered, there is more information about a wider range of professionals.

The importance of leadership

The involvement of leaders at management level of the organisations is crucial to ensure that the principles of working together are strategically embedded in policy. In this way staff are encouraged and supported to work together across organisations. Ideally, senior leaders will identify key staff in each organisation who will lead the working together locally. Where it is sustainable and resistant to organisational or staff changes, working together is embedded in strategy and policy. Senior members of staff in the early years setting and the speech and language therapy service work collaboratively to identify local need and how best to meet it. There are examples of successful partnership and collaborative working in the case studies that were developed to meet different types of need. They result in more efficient use of available resources as universal and targeted interventions are implemented and more children are supported.

Training

Training for both early years settings and speech and language therapy staff is shown to be a valuable contribution to successful working together. This is best framed as knowledge exchange or sharing, and ranges from formal training to individual conversations focused on individual children. Training is best tailored to individual needs. Early years settings generally benefit from training in speech and language development and how to identify children at risk; how to implement chosen interventions and how to support children who stammer. Speech language therapists, however, benefit from social capital training to enhance their relationship building, advocacy and networking within early years settings and shared knowledge about external pressures and drivers for the early years settings and curriculum content, so that they can effectively advise on universal and targeted interventions.

Shared knowledge

For the most effective service structure and delivery, early years settings and SLTs and/or EPs in the case studies work together to share their knowledge about the needs of the children and families in their locality. They also agree how to best meet the child's needs. If these relationships do not already exist, it may be necessary for the early years settings to open dialogue with the speech language therapy service about referrals and joint support for children with stammering and/or speech and language needs. Similarly, speech and language therapy services would have access to more of the resources they need to provide high intensity interventions that best benefit children with stammering,

speech, and language needs. This would be done by working in partnership with early years settings and involving parents/caregivers more strategically.

Including parents and caregivers

Parents and caregivers are successfully engaged in appropriately supporting their child with stammering, speech, and language needs where knowledge of the child is effectively shared and parents and/or caregivers are facilitated to share their own knowledge and experience. Mechanisms can be put in place for sharing information about children that facilitates developing goals or targets with parents/caregivers and SLTs. For example: meetings with explicitly supportive structures so that parents/caregivers feel confident that they have a role and will be listened to.

Data collection and monitoring

In the case studies, there are consistent examples of early years settings working together with SLTs and EPs to ensure that data collection to track children's progress is robust and systematic. Involvement of specialists in planning the universal and targeted levels of intervention helps to streamline data collection about progress and working towards goals. The early years settings are clear as to the quality and nature of data required to make a referral to the specialist services. Parents/caregivers are involved in the provision of data about their child. Parents/caregivers of bilingual children should be facilitated to provide information about their child's use of their home language.

Bilingualism/home languages

Knowledge of the child's home language and any impact on their use of English is shared between early years settings, SLTs, EPs and parents/caregivers. Early years settings in the case studies had strategies for supporting bilingual children and valuing their home cultures. Open dialogues with parents/caregivers to best support bilingual children is also be used to identify children who are struggling to learn their home language and who may need targeted intervention or referral to speech and language therapy.

Opportunity: Relationships and resources

Supporting each other

The relationships built between the working together partners are crucial to their success. Respect for each other's knowledge and expertise and understanding of different roles in supporting children with stammering, speech and language needs are important factors. Training in social capital for SLTs specifically helps them to effectively engage early years settings to identify need and support universal and targeted interventions. Knowledge of local contexts and respect for each other all contribute positively to how partners support each other. There are some examples of staff, often teaching/support

assistants who are linked together by the SLT or early years settings' senior leadership, into staff support groups who share resources and experience to best support children with stammering, speech, and language needs.

Working together

Working together is facilitated by respect and valuing the time and experience of others. For example, where good partnership working exists, early years settings provide a welcoming space for specialists working into their settings. This includes letting the SLT know if a child is absent, to more strategic decisions such as making time for planning and discussion with early years settings staff. Working together to develop partnership within the early years settings can be an opportunity early years settings staff and visiting SLTs to build relationships to foster trust and respect. Ways of engaging and supporting parents/caregivers, when considered at an early stage of the partnership can ensure they feel welcome and valued. This should include appropriately skilled interpreters to allow communication in the parent's/caregiver's home language.

Efficient use of resources

Monitoring children's response to universal, targeted and specialist interventions will ensure they receive the most appropriate level of support at the right time. Some children with speech and language needs will move between the universal and targeted interventions either because the universal intervention is not providing enough support for the child to progress or because the targeted intervention has helped them reach their targets. Some children with speech and language needs will consistently need support from a speech and language therapy service at the specialist level. Most children referred to speech and language therapy services are likely to still need the support provided by universal and targeted interventions delivered by the early years settings. Where aims of the specialist intervention can be supported or achieved within the early years settings, the speech and language therapy service can delegate these to appropriately trained and experienced early years settings' staff. Alongside this delegation there will be monitoring by the speech and language therapy service to introduce new goals and upskill early years settings staff if necessary. Children with typically developing speech and language can still benefit from the universal support in the early years settings.

Referring to specialist services

Timely and appropriate referral to speech and language therapy ensures best use of resources across all organisations. All early years settings in the case studies know the referral route into specialist services, particularly speech and language therapy, so that early and timely assessment and intervention can be put in place. The speech and language therapy services have clear guidelines as to how and when to refer children for support and where necessary, provide tutorials to early years settings about the referral process.

In early years settings where universal and targeted interventions are successfully implemented, the nature of referrals to speech and language therapy services tends to change. A combination of effective universal and targeted input, along with decision-making shared with parents/caregivers and SLTs prior to referral, leads to fewer children referred with mild-moderate forms of speech and language needs. These components also lead to more timely referrals of children with moderate-severe speech and language needs. This benefits both groups of children as they access the appropriate level of support at the time they will most benefit from it. Some referred children may respond more quickly to specialist interventions. This is because skills such as attention, listening and phonological awareness have been acquired in targeted interventions.

Setting boundaries

One contributor to sustained successful working together is a clear agreement on the amount of support provided to the early years settings by the SLT or other specialist, and what that entails. If necessary and possible, a Service Level Agreement (SLA) should be put in place to guarantee specialist presence. In addition, the early years settings should be aware of their scope of practice and not overstep into areas where specialists should be doing the assessment or intervention.

Resources

The early years settings in the case studies ensure that adequate resources are available to deliver the desired intervention for the child. This includes having some ring-fenced time to discuss and plan with the class teacher and others involved with the child. This proves to be an area where support from senior leaders is essential. Environmental constraints may impact the success of targeted intervention if suitable accommodation is not available. For example, consideration should be given as to whether the intervention takes place in the classroom or in a quiet room.

Motivation: Confidence and belief

Both in the literature review and case studies, partnership working is shown to increase the early years setting staff's confidence in their knowledge, skills, and belief that what they are doing will make a positive difference to the children's speech and language. In some cases, this has been a contributing factor to low staff turnover. In all case studies, the early years setting staff were confident in their ability to deliver interventions to a high level of fidelity. Motivation to support children with stammering and/or speech and language needs is also related to observations of the positive impact on the children's progress, confirmed by objective and detailed record keeping.

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Appendix A. Glossary

Term	Definition
Bilingual	A child who is learning more than one language. This could occur sequentially where a child exclusively hears home language at home and is only exposed to English when they enter an early years setting, or simultaneously if they are exposed to more than one language at home.
Broader report	Assessment is based on report of broad non-categorical factors, such as background, home environment, language exposure.
Checklist	An assessment tool where the presence or absence of a skill or behaviour is indicated.
Collaboration	When two or more people with different skills and knowledge work effectively with each other to complete the same piece of work or to achieve the same goal. The work evolves as each person contributes. The arrangement can be informal, and collaborators may change during the work as they start or finish their contribution. Collaborators may not have equal status in the relationship and may not bear the same responsibility for completing the work or achieving the goal.
Communication	Broadly, this means the process of sharing meaning between people using any and all available means, including words, sounds, signs, gestures, and facial expressions. More narrowly and often, in the context of Speech, Language and Communication Needs, communication can refer to the more nonverbal aspects of communication, such as turn-taking, gesture (e.g., pointing), eye contact, and proximity and/or 'pragmatic' aspects of communication such as taking listener knowledge into account, ability to infer non-literal meaning.
Concurrent validity	The degree to which a measure aligns with another well-established measure which is often a standardised "gold standard" test.
Construct validity	The theoretical basis of the measure and ability to differentiate between groups with known differences in ability, e.g. with age. Does the test measure the concept it is intended to measure.
Correlation	A statistical test measuring the degree to which two sets of scores are related to one another such that if one increases then the other also increases or vice versa.

Term	Definition
Cronbach's alpha	A statistical test measuring agreement between scores.
Cross-cultural validity	The degree to which a measure is applicable across cultures and/or has been adapted for use in other languages.
Discriminant validity	Verifies that measures or components of measures that should not be related are not related.
DfE	Department for Education
Early years setting	Any provision which offers early education and care for children aged between 0-5 years.
Face validity	A qualitative, subjective judgement by those who use the tool as to whether it measures what it aims to measure.
Forced choice or Forced alternative	The adult provides the child with a choice of two responses (e.g. one correct and one incorrect).
Global measure	A measure of multiple domains of SLC without specifying or providing scores for separate domains but rather a global rating of SLC abilities.
Grey literature	Literature such as reports published by charities or governments, resource manuals, doctoral theses, and pre-prints of research may not have been peer-reviewed but are likely to contain useful and up-to-date information.
Identification of need	A measure which is designed to support the identification of needs by categorising children into those above or below a given threshold.
Internal consistency	Assesses how well the different items within the measurement tool measure the same underlying construct.
Inter-rater reliability	Assesses the degree to which two different users of the measure /raters of the child's performance agree with one another.
Intra-class correlation	A statistical test can measure inter-rater reliability and test-retest reliability.
Language	The understanding and use of words, sentences, and grammatical markers (e.g. -ing; -ed) to share meaning.
Language difficulty	Language development, which is not reaching age-related expectations, but it is not yet clear if this is a persisting difficulty.

Term	Definition
Language disorder	Language difficulties which persist, are unlikely to resolve without specialist help and which significantly affect the child's everyday social interactions and educational progress.
Learning support assistant	An early years professional who helps children in a setting who need extra support and works with teachers to create positive learning environments for all children.
Normative sample	The sample of children used to develop the norms for a given measure. That is to generate the average range of scores for a given tool and/or the age when a certain behaviour or skill would be expected to have developed.
Observation	Assessment is based on physical observation of the child's behaviour, ability, or skill.
Parallel working	When different professionals work separately with the same child/children, each contributing their specialist knowledge. Each professional bears responsibility individually to achieve their goals, which may have been set with no consultation with other professionals. Parents/caregivers may be more involved with each professional in this model. Information about progress is reported from the professional to the educational setting, other involved professionals, and parent/caregiver. There may or may not be a two-way flow of information.
Partnership	A more formal arrangement than a collaboration. There is a high level of commitment and an expectation that the partnership will be long lasting. Partners share risk and responsibility and contribute similar levels of expertise and resource. Partnerships may facilitate several different collaborations and have several projects or pieces of work at the same time.
Peer review	Articles in academic journals are reviewed by at least two experts in the same field (peers) before it is published. The article is revised by the author(s) in response to the reviewers' comments before publication.
Phonological awareness	The conscious awareness of, and ability to play with the sounds of spoken language. This includes (but is not limited to) recognising word and syllable boundaries, recognising, and generating rhyme, and identifying and manipulating individual sounds in words.

Term	Definition
Profiling strengths and weaknesses	A measure which summarises a child's abilities across a number of SLC domains enabling a profile to be described and areas of potential need for intervention identified.
RAG (red, amber, green) rating	RAG rating is used to record if a child's performance on a task or assessment is acceptable (green), at risk (amber) or below the desired performance (red). There are usually agreed cut points between each level.
Rapid review	A systematic analysis of literature to answer specific questions about a topic. Design decisions and practical steps are undertaken to reduce the time it takes to identify the literature, extract information, analyse and synthesise the data to answer the questions.
Rating scale	Ability is rated on a numerical or categorical scale that describes varying degrees of competence.
Reliability	The consistency and precision of the measure. This can include consideration of consistency over time, between different people using the measure and across items within the measure. Lack of reliability introduced error into the measurement process reducing the confidence we can have that it is providing a true representation of the child's abilities.
SLCN	Speech, Language and Communication Needs. An umbrella category of special needs encompassing difficulties with understanding and using, sounds, words, and/or sentences; forming clear speech; interacting with others; speaking fluently.
Sensitivity	The proportion of people with a given condition that have a positive result on a screening test. A test that is 100% sensitive means all individuals with a given condition are correctly identified i.e. there are no false negatives (i.e. people who have the condition but are not identified by the test).
Specialist	Approaches used for children with identified needs requiring individualised programs of support delivered and/or overseen by SLT.
Specificity	The proportion of people without a given condition that have a negative result on a screening test. A test that is 100% specific means all individuals who do not have a given condition are correctly identified i.e. there are no false positives. As specificity increases, sensitivity decreases.

Term	Definition
Speech	‘Speech’ refers to the production and use of speech sounds including consonants (e.g., p, b, m, s) and vowels (e.g., ah, ee, oo) to form words that convey a message in a given language. Each language has its own set of speech sounds.
Speech sound disorder (SSD)	SSD is an umbrella or overarching term for a difficulty producing or using the sounds of speech in a child’s home language(s), which results in reduced intelligibility compared to other children of the same age. There are several different types of difficulty that are labelled as Speech Sound Disorder.
Stammering	Stammering (also known as stuttering) is characterised by whole and part-word repetitions, prolongations and ‘blocking’ of sounds and may be accompanied by physical tension, additional movements, and/or avoidance of words or speaking.
Targeted	Approaches used to support children at risk of S&LN, and/or not meeting age-related expectations in speech and/or language but not meeting criteria for SLT referral and/or where SLT agree the Targeted offer is appropriate to meet the child’s current needs and/or constitutes a period of dynamic assessment. Support for the child can be focussed directly on their area of need (e.g. vocabulary, grammar) and/or on increasing their communicative and/or educational participation in the setting.
Test-retest reliability	Assess how stable a child’s performance is on the measure. If a measure is repeated to what degree are the scores consistent from one use of the test to the next.
TIDieR framework	The Template for Intervention Description and Replication (TIDieR) is a checklist and guideline developed to help to improve completeness in the reporting of interventions in research studies. It defines key aspects of an intervention which should be described, for example who it is for, what materials are used, how it is delivered.
Tracking progress	A measure which can be used at more than one time-point to enable the tracking of a child’s progress over time.
Universal	Approaches used across a whole setting which promote robust speech, language, and communication development for all children.

Term	Definition
Usability	A qualitative judgement regarding how feasible, practical, and easy a tool is for practitioners to use.
Validity	The degree to which an assessment tool measures the construct it is designed to be measured. There are multiple types of validity.

Appendix B. Evidence Appraisal Tables

Table B. 1. Evidence appraisal for Phonological Awareness intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Unclear
Fidelity reported	Unclear
Fidelity acceptable (above 80%)	Unclear
Blinding of assessors	Unclear
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Unclear

Table B. 2. Evidence appraisal for Speech Recasts intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Met
Initial group similarity	Met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 3. Evidence appraisal for Developing Talkers intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Unclear
Initial group similarity	Unclear
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 4. Evidence appraisal for NELI preschool intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Met
Initial group similarity	Met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 5. Evidence appraisal for Dialogic Reading for Mathematical Language intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 6. Evidence appraisal for Explicit Vocabulary Instruction intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Not met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Not met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 7. Evidence appraisal for Play and Language intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	N/A
Initial group similarity	Not met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Not met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Not met
Effect size(s) reported	Not met

Table B. 8. Evidence appraisal for Shared Book Reading with Gameplay intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	N/A
Initial group similarity	Unclear
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Unclear
Intervention description sufficient for replication	Met
Measures valid and reliable	Not met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 9. Evidence appraisal for Bridge Made of Stories intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Not met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 10. Evidence appraisal for Early Talk Boost intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Not met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Met
Intervention description sufficient for replication	Not met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 11. Evidence appraisal for Educator-Implemented Storybook Vocabulary intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Met
Initial group similarity	Met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 12. Evidence appraisal for Happy Talk intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	N/A
Initial group similarity	Met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 13. Evidence appraisal for Literate Language intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Not met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 14. Evidence appraisal for Nuffield Early Language intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Met
Initial group similarity	Met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Unclear
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 15. Evidence appraisal for Preparing Pequeños intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Met
Initial group similarity	Unclear
Fidelity reported	Met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Unclear
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 16. Evidence appraisal for Read Aloud intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Not met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Unclear
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 17. Evidence appraisal for Story Friends intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Not met
Initial group similarity	Met
Fidelity reported	Met
Fidelity acceptable (above 80%)	Met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Table B. 18. Evidence appraisal for Talk Boost intervention

Appraisal criteria	Quality (Met/Not met/Unclear)
Randomisation procedure clear	Met
Initial group similarity	Met
Fidelity reported	Not met
Fidelity acceptable (above 80%)	Not met
Blinding of assessors	Met
Intervention description sufficient for replication	Met
Measures valid and reliable	Met
p values reported for all outcomes	Met
Effect size(s) reported	Met

Appendix C. Effect Size Tables

Table C. 1. Calculated effect sizes using Hedges' g for Phonological Awareness intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Denne, 2005	Phonological awareness (composite)	0.87	N/A	N/A	N/A
Gillion, 2005	Phonological awareness (phoneme matching)	0.51	Phonological awareness (phoneme awareness)	0.08	N/A

Table C. 2. Calculated effect sizes using Hedges' g for Developing Talkers intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Zucker, 2019	Taught receptive vocabulary	0.84	Exposure vocabulary	0.43	Vocabulary naming; Listening comprehension
Zucker, 2013	Taught receptive vocabulary	0.43	N/A	N/A	Vocabulary fluency; Expressive vocabulary; Listening comprehension

Table C. 3. Calculated effect sizes using Hedges' g for NELI Preschool intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
West, 2024	Oral language (universal)	0.51	Grammar (universal)	0.01	N/A

Table C. 4. Calculated effect sizes using Hedges' g for Dialogic Reading for Mathematical Language intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Purpura, 2017	Receptive vocabulary	0.42	N/A	N/A	Expressive vocabulary

Table C. 5. Calculated effect sizes using Hedges' g for Explicit Vocabulary Instruction intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Damhuis, 2014	Vocabulary (breadth)	1.58	Vocabulary (depth)	1.07	Receptive vocabulary

Table C. 6. Calculated effect sizes using Hedges' g for Shared Book reading with Gameplay intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Hassinger-das, 2016	Taught expressive vocabulary	1.49	Taught receptive vocabulary	1.30	Expressive language (categories e.g. nouns, functions, gestures)

Table C. 7. Calculated effect sizes using Hedges' g for Bridge Made of Stories intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Spencer, 2020	Taught receptive vocabulary (English)	0.93	Taught receptive vocabulary (Spanish)	0.46	Expressive vocabulary; word structure

Table C. 8. Calculated effect sizes using Hedges' g for Early Talk Boost intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Reeves, 2018	Receptive language	0.06	Expressive language	0.04	N/A

Table C. 9. Calculated effect sizes using Hedges' g for Educator-Implemented Storybook Vocabulary intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Vuattoux, 2014	Composite expressive and receptive vocabulary	1.53	N/A	N/A	N/A

Table C. 10. Calculated effect sizes using Hedges' g for Happy Talk intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Frizelle, 2021	Auditory comprehension (receptive)	0.45	Composite language (expressive and receptive)	0.44	Expressive language

Table C. 11. Calculated effect sizes using Hedges' g for Literate Language intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Phillips, 2016	Composite language	0.88	Listening comprehension	0.31	Expressive grammar; expressive vocabulary

Table C. 12. Calculated effect sizes using Hedges' g for Nuffield Early Language intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Fricke, 2013	Grammar	0.69	Oral language (narrative)	0.09	N/A
Fricke, 2017	Taught expressive vocabulary (30-week intervention)	1.12	Grammar (30-week intervention)	0.08	N/A
West, 2024	Listening comprehension	0.28	Grammar	0.08	N/A

Table C. 13. Calculated effect sizes using Hedges' g for Preparing Pequeños intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Landry, 2019	Phonological awareness (separating sounds	0.30	Grammar (basic concepts)	0.10	Print awareness (Spanish); grammar (basic concepts in English)

Table C. 14. Calculated effect sizes using Hedges' g for Read Aloud intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Silverman, 2013	Receptive vocabulary (Read Aloud Plus)	0.68	Receptive vocabulary (Read Aloud only)	0.44	Receptive vocabulary (standardised assessment)

Table C. 15. Calculated effect sizes using Hedges' g for Story Friends intervention

Study	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Kelley, 2015	Taught receptive vocabulary	2.62	N/A	N/A	Language comprehension
Kelley, 2020	Unable to calculate	N/A	Unable to calculate	N/A	Receptive vocabulary (standardised assessment not reported)

Table C. 16. Calculated effect sizes using Hedges' g for Talk Boost intervention

Study	Language status of sample	Highest effect	Highest effect size (Hedges' g)	Lowest effect	Lowest effect size (Hedges' g)	No effect
Lee, 2016	English as an Additional Language	Narrative (Year 1)	0.79	Expressive grammar	0.02	N/A
Lee, 2016	Monolingual English	Narrative (Reception)	0.58	Narrative (Year 1); Grammar (All children)	0.04	N/A

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