



Public Health
England



Education
Endowment
Foundation

Early Language Development: Needs, provision, and intervention for preschool children from socio- economically disadvantage backgrounds

A Report for the Education Endowment Foundation

October 2017

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Executive summary

This review has been commissioned by the Education Endowment Foundation and Public Health England to identify priorities for improving practice in the support and management of children with delays in early language development between birth and five years (72 months). In addition, it has the specific objectives of highlighting interventions that have the greatest potential to improve children's life chances, reduce inequalities in outcomes, and potentially inform further rounds of research funded by the EEF.

The review starts with an overview of the most recent findings associated with our understanding of early language and preliteracy development. It goes on to look at prevalence and at the proportion of children not attaining the appropriate levels of attainment in the early years. It then turns to interventions, their efficacy and effectiveness, and contextual factors that affect their implementation. Finally, we move on to the way that services are delivered on the ground in England and highlight the profile of five local authorities, the services they deliver, and factors affecting that delivery. The review ends with a summary of the main findings and recommendations for which interventions could usefully be taken forward. In the Appendices we provide summaries of the interventions identified and a table of interventions and their outcomes and then provide some additional details about the five case studies identified in Chapter 5.

Early language development

Early language development generally progresses through a series of distinct but overlapping stages and the majority of children follow similar patterns in a given language, albeit at different rates.

Although language acquisition is a very robust process there is evidence that the rate at which children develop language is sensitive to the amount of input they receive from the adults around them. The quality of input that children receive is likely to be more important than the quantity. Children's gestures, such as pointing, are important precursors of subsequent language development. There are a number of well-developed measures of early language development. Some directly test receptive and expressive language skills, other rely on parental report. Although children often have different patterns of interaction as they start to speak (some use lots of words, others combine words very early on in their development), broadly speaking children need to be using between 50 and 100 words before they start putting words together into word combinations or proto-sentences. At some point between two and three years of age, children typically start to produce longer, more complex sentences, and begin to include function words (for example pronouns like *I/you/he*, auxiliary verbs like *can/will/might*, articles like *a/the*) and word endings/ morphology (such as *dogs*, *finished*). Putting words together may be a better predictor of later abilities than the number of words that a child uses.

Identification

The most recent prevalence figures for preschool language difficulties summarised in this review fall between 7% and 14% depending on the age, thresholds adopted, and the measures used. These figures are highly sensitive to social disadvantage. In lower socio-economic groups (however defined) the figures are much higher.

Studies have demonstrated that there is a great deal of individual variability in language as it develops, some children starting well and dropping behind, others starting very slowly and catching up. This finding has been replicated in a number of studies, each finding similar rates in the preschool years of approximately 70% of children with low language abilities having *resolving difficulties* and 30% *persisting difficulties*. A small, late-emerging group also exists who appear to start well but then fall behind their peers later in development.

We also look at the proportion of children not meeting expectations for the communication, language, and literacy skills (CLL) on the Early Years Foundation Stage measure. Across the whole of England in 2015, approximately 15–20% of four- and five-year-old children were not meeting expected levels. These figures are also sensitive to social disadvantage.

Intervention

We identified 49 intervention studies which met our criteria. All the studies are summarised using criteria from the What Works for SLCN database¹ combined with an evidence rating system intended to capture how much confidence we should have in the results of a given intervention.

We classified the studies according to:

- the focus of the interventions (primary and secondary outcomes) with four outcome categories—phonological awareness, vocabulary, expressive language and receptive language;
- whether the studies were programmes and practices;
- who delivered the intervention;
- the location of the interventions;
- the intensity and duration of the interventions; and
- the effect size of the intervention.

Evidence from the most robust studies suggests that there would be merit in carrying out further evaluations of two key types of intervention:

1. parent–child interaction interventions with young children as a means of promoting children’s language abilities and ensuring that children are ready for learning when they get to nursery at 2–3 years; and
2. training early years practitioners (professional development) to deliver interventions within early years settings.

Service development

Rather than writing about every local authority in England, we identified five case sites characterised as two inner city areas and three rural or suburban areas. We then collected data about each site and its provision for children with SLCN irrespective of from where those services were provided (health, education or private sectors). The five sites represent SLCN provision that is at various stages of development, but all five are adopting a systematic approach to delivering *integrated provision* to achieve *shared outcomes*. The approach draws on the expertise of the specialist workforce from both health and education, together with systematic support and development for the wider children’s workforce as well as meaningful engagement with families and young people. We supplemented this information with summaries of the ‘local offer’ for our five sites, plus some others as comparators. The amount of information that is available for parents and professionals varies considerably in its specificity. Speech Language and Communication Needs is a real focus in some authorities, whereas in others it scarcely gets a mention. Alongside key demographic information, five strands of activity are captured, namely Family Support, Enhancing Environments, Developing Workforce, Early Identification, and Effective Intervention, and within each of these across the three levels of universal, targeted, and specialist support.

¹ The Communication Trust’s interactive database relating to Speech Language and Communication Needs (SLCN).

In conclusion

Developments in the past twenty years have highlighted the importance of early language development, the range in individual variation, and the sensitivity language development has to environmental input. There is now some convergence about the level of need, although results from studies based on performance on standardised language tests tend to give rather different results from practitioner report of educational need. A number of intervention studies have been carried out, most of which have positive outcomes for the intervention group although the quality of the evidence varies considerably. With one or two exceptions, interventions are best described as practices rather than programmes evaluated in one off studies, and even when they are programmes there is not much evidence of replications. Nevertheless, there are practices that show promise. How well such interventions translate into service delivery depends on the context in which those interventions are delivered. Although services do refer to the names of specific interventions—and one could argue that these have elements of the practices to which reference was made above—in practice, many of the interventions cited at the service delivery level do not tend to be those for which there is formal evidence.

Glossary

Autistic Spectrum Disorder (ASD): Autism is a lifelong developmental disability that affects how people perceive the world and interact with others.

Babbling: Speech-like sounds made before the child first starts to formulate words.

Comprehension/ Receptive language: Comprehension of spoken language is the ability to understand what is said to the child. A distinction is often drawn between what children understand when with familiar people (i.e. in context) and what they are able to understand on their own.

Cued Articulation: Cued Articulation is a set of hand cues, drawing the child's attention to specific speech sounds, for teaching the individual sounds in a word.

Developmental Language Disorder (DLD): Term recently agreed as the consensus difficulties of those with the most pronounced language difficulties.

Executive function: An umbrella term for cognitive processes that regulate other cognitive processes, e.g. planning, working memory, attention etc.

EYFS: Early Years Foundation Skills: Term used in England for the assessment of children at school entry; this includes the Communication Language and Literacy (CLL) subscales.

Expressive language: Vocabulary, grammar, and morphology (small changes to words, e.g. plural 's').

Free School Meals (FSM): Term used in educational contexts to determine eligibility for subsidised meals and thus used as an indicator of social disadvantage.

Hanen: A centre in Toronto, Canada which has developed a number of different intervention programmes to promote parent–child interaction.

Index of Multiple Deprivation (IMD): A composite measure of relative socio-economic deprivation used in the U.K.

Intelligence Quotient (IQ): Tested indication of a child's overall intelligence; often separated into verbal and nonverbal IQ.

Language delay: Expressive and/or receptive language skills significantly below expectations.

Language disorder: A term used to suggest that a child's language is developing differently from that of typically developing children. Assumed to be substantively different for language delay, although the evidence underpinning this difference is very limited. Largely synonymous with language impairment.

The Local Offer: Local Offer provides a 'comprehensive, transparent and accessible picture of the range of services available' in a given local authority in England (SEND Code of Practice 2014).

Morphology: Usually word-endings in English—the smallest units of words that affect meaning. Commonly split into inflectional (e.g. the plural 's' or the continuous ending 'ing') and derivational morphology (where one word derives from another, e.g. (un)popular).

Non-specific language impairment: Term used to describe language learning difficulties in conjunction with other developmental difficulties.

Phonology: The system of contrastive relationships among the speech sounds that constitute the fundamental components of a spoken language.

Pragmatics: The verbal and associated non-verbal skills for communicating intended meaning within context, i.e. not just the structural aspects of language.

Prevalence: Total number of cases of a given condition in a given population, e.g. 'language disorder in five-year olds in the UK'. Differs from incidence, which is the number of new cases in a given period.

Proto sentences: Often two-word combinations where children start to put words together—the beginnings of grammar.

SEN: Special Educational Needs. Associated with intelligibility in young children but also related to pre-literacy skills such as phonological awareness.

SEND: Special Educational Need and Disability.

Sensori-neural hearing loss: Hearing loss caused by damage to the inner or sensory organs of the ear. Normally contrasted with conductive hearing loss caused by blockage to the outer ear.

SLCN: Speech Language and Communication Needs. Generic term used in England to describe the full range of communication difficulties in children. Language delay would fall within this category.

SLT: Speech and Language Therapist. Professional with specific expertise in identifying and 'treating' children with language learning difficulties, including language delay.

Socio-economic Status (SES): Generic term used to describe characteristics of the child's social environment; commonly refers to parental employment or educational status.

Specific language impairment: Term used to describe language learning difficulties without any other developmental or learning difficulties. Preferred term is now Developmental Language Disorder

Syntax/grammar: The meaningful combination of words to represent complex ideas. Sometimes known as 'combinatorial' language when referring to the earliest stages of language development.

TCT: The Communication Trust. An umbrella organisation covering 50 other charities with an interest in children with SLCN.

What works for SLCN: The Interactive database hosted by The Communication Trust to provide information to practitioners about the best evaluated interventions for children with SLCN.

Chapter 1: Introduction

Oral language is key to a child's development. For most children language develops automatically. Just by being around other people children start to speak. One moment they are babbling, pointing, and copying what they see and hear. The next they are starting to use words, to name people and objects around them, and soon they are starting to make those first steps to more complex communication, putting words together and forming early sentences. Some people have called this 'natural' language and regard it as distinct from explicitly taught aspects of communication such as reading and writing. In most cases the acquisition of language follows the same sequence, although the speed at which it does so can vary considerably, and by the age of three years there are very real differences between children in terms of how far they have got on the road to language.

Whether these differences are important depends on whether they affect how well children manage to communicate with their family and friends, get on at school and access the curriculum, and go on to be effective communicators ready to negotiate adult life and the modern world of work which relies so heavily on oral language skills. There is increasing evidence that these early skills do make a difference to later performance, and children whose skills develop more slowly than those of their peers may indeed have difficulties with a number of different aspects of their development. Indeed, we have shown that low vocabulary skills at school entry is associated not only with adult literacy at 34 years but also mental health and employability (Law, Rush, Parsons and Schoon, 2009). A number of different explanations for these differences have been suggested. In some cases, they are associated with more general learning disabilities, but in others these early delays appear to be specific to language. There is some evidence for these differences running in families and twin studies indicate high levels of heritability. For some children, differences may be associated with how much they are able to hear language around them and it is clear that children with sensori-neural losses often experience difficulties in this regard. Differences also occur across different social groups giving a pronounced *social gradient* leading many commentators to suggest that the level of input (how much people talk to the child) may be very different in more or less socially disadvantaged families and that this may make a key difference to the child's development. But such explanations are complex and incomplete. Studies that predict later development may do so at statistically significant levels but they only ever predict a relatively modest amount of the variance in the outcome (whatever it is), and leave much unexplained.

In this report, we ask: What do we know about early oral language development in typically developing children, and how does it vary (Chapter 2)? We then look at how many children have difficulties acquiring language as defined in different ways—from formal prevalence estimates to estimates of need based on data from the National Pupil Database (NPD) in England, and specifically the Early Years Foundation Stage in England (Chapter 3). As the title of the report would suggest, the primary focus here is on children from more socially disadvantaged backgrounds, but we cover a much wider range of literature including, for example, children with developmental language disorder—those with the most marked differences in their language skills. In the last chapters, we focus on the services and the interventions that are available for children with such differences. In Chapter 4 we look at some of the best intervention evidence published since 2000 underpinning language interventions developed in the early years setting and in the community and pull out what look to be the key practices or 'ingredients' of these interventions and give some indication of how much of an effect they are likely to have. In chapter 5 we turn to the services which meet these needs in these children. To do this we take five cases studies and describe how they are organised and how the interventions that they offer do, or do not, reflect what the evidence base is telling us.

It is important to see the development of such services within a broader policy context. The provision of services to children with what are now known in educational parlance as, 'speech, language and communication needs', or SLCN, has been of concern for well over twenty years, in part, at least,

because there were concerns about whether the needs of this group of children were being met by the available services, whether supplied by education authorities or by health services in the case of speech and language therapists. In fact, so concerned were government departments about the 'border disputes' between the two services that they commissioned a review in 1999 (Law, Lindsay, Peacey, Gascoigne, Soloff, Radford and Band, 2000) which led, in some cases, to a reorganisation of services (Law, Gascoigne and Garrett, 2003). This, in turn, led to the much more extensive review carried out by MP, now speaker, John Bercow in 2008 (Bercow, 2008; Lindsay, Desforges, Dockrell, Law, Peacey and Beecham, 2008; Gross, 2010) which led to the Better Communication Action Plan (DCSF, 2009) and the Better Communication Research Programme (Dockrell, Lindsay, Roulstone and Law, 2014). The topic has proved to be of concern to the Charity Save the Children (Save the Children, 2012, 2013, 2014, and 2015; Law, Todd, Clark, Broz and Carri, 2013), to the lobby group the Centre for Social Justice (Allen and Duncan Smith, 2008; Centre for Social Justice, 2013 and 2014) and more recently we have seen an enquiry by the All Party Parliamentary Group on Speech and Language, specifically into the relationship between communication skills and social disadvantage (APPG, 2013). This pattern of concern has been mirrored in other developed countries, for example in Australia (Senate Community Affairs References Committee, 2014) and the U.S. (Rosenbaum and Simon, 2016).

The report asks four key questions:

- What do we know about typical language development?
- What do we know about current levels of need?
- Is it possible to identify promising practices and programmes designed to improve children's language skills in the early years?
- To what extent is it possible to map those interventions onto existing services?

To answer these questions, the report makes extensive use of the existing literature, but the research team has also analysed data from the National Pupil Database (Chapter 3), carried out a systematic review specifically for the report (Chapter 4), and has developed an analysis of five case study sites of English local authorities (Chapter 5) to describe how different factors interrelate in the process of service delivery.

The overall aim of the report is to contribute to the discussion currently underway in the Education Endowment Foundation (EEF) regarding the guidance offered to schools as to how best to meet the needs of children in the early years, and inform the EEF's funding and evaluation of early language interventions. The goal of the EEF is to break 'the link between family income and educational achievement, ensuring that children and young people from all backgrounds can fulfil their potential and make the most of their talents': oral language skills are clearly central to that link.

Chapter 2: Typical language development

Chapter Summary

This chapter summarises the most up-to-date and relevant literature about child language development.

Early language development generally progresses through a series of distinct but overlapping stages and the majority of children follow similar patterns in a given language, albeit at different rates.

Although language acquisition is a very robust process there is evidence that the rate at which children develop language is sensitive to the amount of input they receive from the adults around them. The quality of input that children receive is likely to be more important than the quantity.

Children's gestures, such as pointing, are important precursors of subsequent language development.

There are a number of well-developed measures of early language development. Some directly test receptive and expressive language skills, others rely on parental report.

Although children often have different patterns of interaction as they start to speak (some use lots of words, others combine words very early on in their development), broadly speaking children need to be using between 50 and 100 words before they start putting words together into word combinations or proto-sentences.

At some point between two and three years of age, children typically start to produce longer, more complex sentences, and begin to include function words (e.g. pronouns like *I/you/he*, auxiliary verbs like *can/will/might*, articles like *a/the*) and word endings/ morphology (e.g. *dogs*, *finished*)

Putting words together may be a better predictor of later abilities than the number of words that a child uses.

The development of oral language is mediated by, and in turn impacts upon, developments in other cognitive domains.

Oral language precedes and underpins pre-literacy skills, as well as later reading (and especially reading comprehension) and writing.

Overview

This chapter provides a brief theoretical overview of early communicative development. We highlight the key features that can be used to inform assessments and interventions. We briefly discuss how best to measure children's development, and some of the practical issues that arise. Then, taking the different stages/areas of early communicative development in turn, we identify key developmental milestones, documenting individual differences to highlight the variability present within the population. We summarise evidence demonstrating relations between language input (environment) and communicative outcomes, and identify signs within each domain that might indicate a child is not developing as expected. Finally, we summarise evidence for links between early communicative development and later (pre)literacy skills, highlighting the importance of communicative development in the preschool years for later academic success. Language acquisition milestones are addressed in a variety of publications (Dale, Price, Bishop and Plomin, 2003; Ellis Weismer, 2007; Fasolo, Majorano and D'Odorico, 2008; Klee, Carson, Gavin, Hall, Kent and Reece, 1998; Rice, Taylor and Zubrick, 2008; Reilly, Wake, Ukoumunne, Bavin, Prior and Cini, 2014; and Thal, Marchman and Tomblin, 2013).

Theoretical approach and models of learning

Understanding language learning requires consideration of all aspects of the environment in which the child is developing, as well as the specifics of their exposure to, and production of, language. Thus, the theoretical approach in which we frame our review is social-interactionist and usage-based in nature (for example, Tomasello, 2003). This approach firmly situates the development of early communication within the social context, emphasising the need for plentiful socially meaningful interactions between children and their caregivers to optimise early development. For example, caregivers can scaffold their child's development by

- responding contingently to their child's early attempts to communicate;
- maximising talk during everyday routines to provide opportunities for their child to hear language used in clear and predictable ways;
- extending and elaborating on their child's early utterances so their child hears a variety of words and sentence structures; and
- (as children get a little older) capitalising on opportunities to draw their child's attention to different sources of print in the environment.

Common across development is the underlying assumption that learning to communicate successfully, whether through oral language or the written form, requires a solid understanding of the meanings of words, and in early childhood this is critically dependent on repeated but varied language use in socially meaningful, contextually rich interactions (Ambridge *et al.*, 2015). We note that this approach to learning, while also useful when considering children with developmental disorders, must be interpreted in the context of the specific challenges they face.

Measuring language and communicative development

The question of how best to measure a child's developing language and communicative skills is not by any means straightforward. Difficulties arise because the milestones we expect children to reach cover a variety of different domains (such as babble, gesture, vocabulary, sentence complexity) which change across development. Global measures (for example, Wellcomm, CELF-Preschool, Preschool Language Scale) which aim to give a general sense of a child's communicative abilities often provide overall scores rather than sub-scores within each domain, making it difficult to identify precisely which aspects of language a child might be struggling with. For this reason, in this review we highlight

possible measures of each specific outcome, including more global measures only if they contain subscales that produce a score for each outcome individually. The reliability of such cases can be a challenge especially in the preschool years when children are often more difficult to assess than they are later on. We note, however, that collecting the kind of detailed data necessary to get a clear picture of development can be costly and time consuming, so a balance is needed between accurate and interpretable measures and their ease of delivery and implementation. A stronger research base is needed to develop and validate reliable, deliverable measures of specific aspects of language and communicative development across the preschool years.

Early vocalizations

Sequence

During the first year of life, infants start to vocalize. This is initially cooing, gurgling, and squealing, but turns into babbling (speech-like sounds) at about seven months of age, although there is some degree of variation between children. Vihman (1996) suggests the following sequence of acquisition, indicating the variability present in the age at which typically developing children reach each sub-stage:

- 2–4 months: cooing and laughter.
- 4–7 months: onset of vocal play sounds (squeals, yells, growls). Some babies may start some very simple babbling.
- 7+ months: start of ‘canonical’ babbling—strings of repeated syllables (*ba-ba-ba*, *da-da-da*) or mixture of syllables (*ba-da-ga*).

Relations to later oral language

Babbling is a strong predictor of later language production: children who babble early tend to be those who start to talk early (McGillion *et al.*, 2016), most likely because babbling allows children to practice the sounds of their language.

Environmental effects

There is evidence that infants vocalize more when parents are interacting with them, in line with the general social interaction-supported learning approach outlined above. Infants produce more syllabic, speech-like vocalizations when mothers smile and make eye contact with them (Hsu *et al.*, 2001), and infants whose mothers respond to their vocalizations with behaviours such as smiling and touching produce more developmentally advanced vocalizations (Goldstein, *et al.*, 2003). This suggests that interventions that focus on training parents and practitioners to engage in a lot of social interaction with babies should result in babies vocalizing more frequently and producing more sophisticated vocalizations. This is clearly testable, and we return to the effectiveness of interventions targeting parent/child interaction in Chapter 4 below.

Measurement

It is possible to measure the onset of vocalizations (such as babble), their frequency, and their complexity. Vocalization frequency and complexity are most commonly measured via observation—watching babies interact with an adult and measuring the number of times the baby vocalizes in a set period of time (Franklin *et al.*, 2013) or the types of vocalization they produce (McGillion *et al.*, 2016). However, accurate measurement is likely to require some degree of specialist training as it can be difficult to differentiate the various sounds a baby produces.

Warning signs

Although there is some degree of variation between children in the onset of early babble, there are warning signs to look out for. The Hanen Centre, a Canadian charitable organization focused on promoting language, social, and literacy skills in young children, recommends consulting a practitioner if a child doesn't babble with changes in the loudness and emotional tone of their voice by 12 months (for example, *dadadadadadadadada*). Note that we refer to the Hanen Centre here and elsewhere in this chapter because it provides a useful and accessible summary of very specific recognised 'warning signs' relating to children's language and communicative development. This is not meant to indicate any particular endorsement for its intervention programmes. For evaluations of its work, see, for example, Roberts and Kaiser (2011). Other accessible summaries of typical development include the 4Children guide (2015) '[What to expect, when?](#)', The Communication Trust's [Universally speaking ages and stages from 0–5 years](#), or, for progress-checkers for parents, see, for example, [ICAN's ages and stages](#).

Communicative gestures

Sequence

A baby's communicative life begins well before she starts to talk. Adults and babies will have been engaging in successful communication for quite a few months before the first word, through gestures (such as waving, shaking, and nodding the head), showing, and giving objects to other people, and pointing. Babies start to communicate with gestures after about seven months, following and interpreting the gestures of others, and using their own gestures (for example pointing with eye gaze) to request objects and actions, and to share interest. Index finger pointing, which is viewed as a major milestone in communicative development, emerges between seven and 15 months, usually at around 12 months (Callaghan *et al.*, 2011; Liskowski *et al.*, 2012). However, gestures involving holding up objects to a caregiver to create a focus of shared attention (showing and giving gestures) appear to emerge earlier than pointing, usually at around 10 months (Bates, 1976; Cameron-Faulkner *et al.*, 2015). Note that there are large individual differences both in the frequency of use and in the complexity of gestures at different ages.

Relation to later oral language

There is evidence that these communicative gestures, used to share attention, are precursors to language development; early gesture use is a strong predictor of later language ability. For example, babies who start to use communicative pointing early also develop language earlier (Colonesi *et al.*, 2010) and know more words at 18 months (McGillion *et al.*, 2016). In addition, the frequency of showing and giving gestures is predictive of the later frequency of pointing gestures, providing an early window onto a child's communicative development (Cameron-Faulkner *et al.*, 2015).

Environmental effects

The relation between caregiver input and the development of children's gestures is not completely clear. For example, although studies report strong correlations between caregivers' use of gestures, and their children's gesture production in interaction (such as Namy *et al.*, 2000), it is often difficult to establish the direction of the effect: it could be that children who gesture a lot attract the attention of their caregivers who then gesture in return. However, there is tentative evidence that the amount of time infants and caregivers spend interacting together over objects (such as sharing a toy or reading a book: Salomo and Liskowski, 2013)—in particular those objects that children indicate an interest in (by holding them up to the caregiver, Cameron-Faulkner *et al.*, 2015)—predicts the frequency of infant gestures both concurrently and at later stages of development. Thus, caregivers who promote shared interaction with their children and who are sensitive to their children's gestures and focus of attention may be more likely to provide the types of responsive interactions that facilitate later gesture use and subsequently language learning.

Measurement

It can be difficult to establish the precise time point at which any given gesture emerges in a child's communicative repertoire without receiving training on precisely what to look out for (Boundy *et al.*, 2016), or collecting data every day. However, it is possible to measure the frequency and/or complexity of children's gestures using parent or practitioner report measures like Communicative Development Inventories (CDIs), which contain a gesture sub-section and provide gesture scores (<http://mb-cdi.stanford.edu/>), or by recording children interacting with others and counting and coding the gestures they produce (Cameron-Faulkner *et al.*, 2015).

Warning signs

Although there is huge variation in children's early gesture use, there are still warning signs to look out for; the Hanen Centre recommends consulting a practitioner if a child doesn't use any simple gestures (such as shaking her head or waving bye-bye) by 12 months of age.

Word learning

Sequence

Word learning or vocabulary development is the process by which we learn to understand and produce new words, and involves a number of components:

- learning to recognise and produce the sounds of the words;
- learning the meaning of the word (*dog* = four-legged, furry animal that says woof); and
- learning how to develop the representation of the word and generalise the word correctly (such as learning that *dog* can be used to refer to all different types of dogs but cannot be used to refer to any cats, no matter how similar they may look to dogs; or that *go* can stand in for *walk*, *run*, *stroll*, or *drive*, but, for example, *walk* cannot always be used in place of *go*).

Word learning is typically split into two distinct components: expressive vocabulary (what children say), and receptive vocabulary (what children understand). Data from the Stanford Wordbank, an open database of children's vocabulary development from a variety of languages, show that the fastest children have already produced their first word by eight months. Most children's first words emerge between nine and 14 months of age, but there is a huge amount of individual variation and it is not unusual for children to start talking much later (up to 18 months of age). This is then reflected in the size of a child's productive vocabulary which, at 18 months, can vary from around ten words to as many as 200 (Stanford Wordbank). Most children can understand more words than they can say. Some infants begin to show sensitivity to the meaning of common words at around six months (Bergelson and Swingley, 2012), and data from the Stanford Wordbank suggests that by 18 months the average American English-learning child understands 262 words, although—as in production—the range in receptive vocabulary is very wide (from around 120 to 367 words). SES background is known to have an impact on expressive vocabulary: even at 16–30 months of age, American children from lower SES backgrounds, on average, have smaller vocabularies than children from higher SES backgrounds (Arriaga *et al.*, 1998).

Relations to later oral language

Relations between early measures of vocabulary and later language development are complex. The timing of the onset of word combinations is related to the size of the child's vocabulary, so slower vocabulary learners will tend to combine words into utterances later (Bates *et al.*, 1988). However, longer-term relations between vocabulary and later language outcomes are less clear. This is because, on the one hand, the majority of late talkers appear to resolve their language difficulties by school age, performing within the normal range (although often below their peers with no reported language problems, Rescorla, 2011). On the other, many children later diagnosed as having language

delay are not categorised as late talkers in infancy (Rescorla, 2011). Evidence from longitudinal studies suggests that the relation between measures of early vocabulary and later language outcomes is not particularly reliable in individual children (Henrichs *et al.*, 2011; Ghassabian *et al.*, 2013), although particular risk factors such as the presence of both expressive and receptive deficits (Paul and Roth, 2011) or a family history of language difficulties (Bishop *et al.*, 2014, Zambrana *et al.*, 2014) improve the predictive relationship.

Environmental effects

There is a wealth of research evidence around the optimal contexts for word learning. Input quantity is important: we have long known that children whose parents talk a lot to them have faster vocabulary development (Hart and Risley, 1995; Cartmill *et al.*, 2013). However, recent evidence suggests that input quality may be more important than quantity (Rowe, 2012). The quality of linguistic input can be characterised in a number of different ways, but central is the need for socially meaningful contexts to support learning. Quality refers to:

- the extent to which caregivers talk about the child's focus of interest (contingency);
- the variability in the words used to talk to children;
- connecting new words to meaningful contexts in the child's daily life; and
- using decontextualized talk (referring to things and events not physically present, including explanations, pretence, talk about the past/future, and narrative) to broaden a child's understanding of word meaning.

At the earliest stages of acquisition (from around 18 months), tuning into the child's current focus of attention and labelling objects of interest is related to children's expressive vocabulary (McGillion *et al.*, 2013; Tomasello and Farrar, 1986). However, as children get older (around two years), using a diverse vocabulary including rare or infrequent words becomes more important to enable children to develop a more sophisticated vocabulary, and at even later ages (from around three years) exposing children to decontextualized talk seems most effective at building their receptive vocabularies (Rowe, 2012). For verb learning, the frequency of verb use in the language children hear is an important predictor of acquisition, but so is the number of different sentence contexts in which a verb appears (Naigles and Hoff-Ginsberg, 1998). This demonstrates the need for a rich and diverse input to enable children to best learn the meanings of different word types. Interestingly, differences in the rate of productive vocabulary growth between children from different SES groups at two years of age can be almost entirely explained in terms of these kinds of differences in caregiver input (Hoff, 2003). These studies suggest that interventions that focus on training parents and practitioners to talk and interact with babies and young children, especially those that focus on helping adults to use specific language-boosting behaviours in interactions, should result in children learning a greater variety of words more quickly.

Measurement

The best measures for examining receptive and expressive vocabulary development are those which test how many words a child knows at a particular developmental point, and are focused specifically on vocabulary rather than on language learning in general, for example standardised lab or clinic-based tests (such as the British Picture Vocabulary Scale (BPVS), a limited and rather unidimensional measure of receptive vocabulary). Both can also be measured via parent report instruments like CDIs (<http://mb-cdi.stanford.edu/>), most of which provide separate scores for receptive and expressive vocabulary. However, scores for receptive vocabulary become increasingly unreliable as children's vocabularies expand (after about 18–24 months), since parents find it hard to keep an accurate track of all the words their children know. While parent report measures have been shown to be valuable in identifying patterns of language development in populations of children, concerns have been raised about their use as clinical tools (Law and Roy, 2008).

Warning signs

There is huge individual variation in the speed of vocabulary learning. Although children will usually understand more words than they can produce, the two often develop hand in hand. However, this is not always the case, and deficits in one (or both) domains can be indicators of a child who needs help. The Hanen Centre recommends seeking specialist advice if a child does not seem to understand any words at all (for example, shows no response to their own name) at 12 months and/or has failed to produce any words by 15 months.

Early combinatorial (multiword) speech

Sequence

When children have learnt between 50 and 100 words, they start to put these words together into short phrases. These phrases are usually about two or three words long (for example, *want juice*, *where car*, *no more*, *daddy do it*), though children may use a handful of rote-learned longer sequences (such as *this little piggy go market*). Most phrases will have missing function words (articles like *the/a*, pronouns like *I*, *we*, *you*) or word endings (children say *want juice* instead of *I want juice*, and *that go there* instead of *that goes there*). As in word learning, there is considerable variability between children. The Early Years Outcomes guide (Department for Education, 2013) suggests that children should start combining words into simple sentences at 22 to 36 months, although children should start to understand simple sentences much earlier—between 16 and 26 months. However, as producing simple sentences requires some minimum level of vocabulary (50–100 words), differences in vocabulary may underlie reported differences in the age of onset of combinatorial speech across children from different socioeconomic backgrounds (Arriaga *et al.*, 1998).

Relations to later oral language

The precise relations between early word combinations and later language outcomes are unclear. However, a recent study suggests that children who were late to combine words were more likely to be identified as having later language difficulties than those who were late to produce their first words (Rudolph and Leonard, 2016), suggesting that measures of combinatorial speech may be more informative than vocabulary measures alone.

Environmental effects

As the amount and type of speech to children influences their vocabulary learning, and children need to know a collection of words in order to combine them, the quality of input has a knock-on effect on the onset of combinatorial speech (Bates *et al.*, 1988). In addition, children's multiword utterances are closely related to patterns they hear. For example, many children's early utterances are closely tied to specific slot-and-frame type patterns, where they can substitute a variety of words into a slot in an otherwise fixed pattern (such as '*Where's X gone?*' or '*More X*', where '*X*' can be substituted by a variety of object names: Lieven *et al.*, 1997). Many of these early slot-and-frame patterns appear closely related to high frequency patterns that children hear (Cameron-Faulkner *et al.*, 2003) used in the kinds of daily routines that surround the child (such as dressing, mealtimes, book-reading). By gradually expanding on these early slots, children's language becomes increasingly complex, but this pattern of development varies across the different words the child has learned as a function of how those same words are used in their caregivers' input (Theakston *et al.*, 2015). Given the relationship between language input and children's early word combinations, interventions which promote language-boosting behaviours focused on both vocabulary learning and contextually supported language use in daily routines are likely to have a positive impact on combinatorial speech. For example, expansions (where caregivers build on what their child has said) provide a particularly rich source of information both about the meaning of the words the child is attempting to produce, and about how those words can be used in different types of sentences, leading to benefits on a range of

language measures in both typically developing and language-impaired children (Cleave *et al.*, 2015; Taumoepeau, 2016).

Measurement

There are a number of standardised, clinic- or lab-based measures available to assess children's combinatorial speech capabilities in both comprehension and production. Some provide a detailed profile of children's early combinatorial abilities (Rhode Island Test of Language Structure, Early Repetition Battery). Other language tests contain subscales that measure grammar (TACL and TEXT, CELF Preschool). Parent report checklists like the MacArthur-Bates Words and Sentences contain short sentence complexity measures that can be used to test whether children are putting words together into sentences at all, as well as test the complexity of children's early sentences. In addition, it is also possible to measure a child's grammatical ability using recordings of the child in conversation with a caregiver. Measures like mean length of utterance (MLU) and IPSyn can be calculated on transcripts of children's speech, either by hand or using the automated programmes available free on the CHILDES website. For example, children at the early combinatorial stage should have a MLU of between one and two morphemes (Brown, 1973).

Warning signs

As with other aspects of language development, although there is considerable variation between children, there are warning signs to watch out for. The Hanen Centre recommends contacting a professional if a child doesn't understand simple commands like *don't touch* by 18 months, and/or isn't consistently joining two words together like *Daddy go* or *shoes on* by 24 months. However, it is important to note that children learning languages other than English (bilingual or EAL learners) may not necessarily show the same pattern of development. For example, in some languages, especially those such as Turkish or Spanish that have many different word endings used with different person (*I, you, s/he*) and number (singular, plural) forms, children tend not to miss out word endings at all but rather use (mainly) correct endings from the outset (Aguado-Orea and Pine, 2015; Aksu-Koç and Slobin, 1985). In addition, as English is a strict word-order language, changing the order of the words in a sentence changes its meaning (compare *the cat chased the mouse* with *the mouse chased the cat*). In languages such as Polish or Finnish, word order can be more flexible, which may lead children to rely less heavily on fixed slot-and-frame patterns. Thus, to measure and interpret specific patterns of acquisition, it is necessary to have a good understanding of the properties of the language being learned, and how it is actually used in the input to young children.

Complex sentences

Sequence

At some point between two and three years of age, children typically start to produce longer, more complex sentences, and begin to include function words (such as pronouns like *I/you/he*, auxiliary verbs like *can/will/might*, articles like *a/the*) and word endings (*dogs*, *finished*) in their utterances. Usually production is preceded by comprehension, but there is large variability in the onset of more complex language comprehension and production. Children start to understand more complex sentences (such as *put your toys away and then we'll read a book*) at 22–36 months. This is later followed by more complex production (for example, the use of a range of tenses, *play, playing, will play, played*) between 30–50 months (Department for Education, 2013). At this point, children's language starts to sound more adult-like both in terms of the structure of their sentences and the topics about which they can converse (for example, describing and reconstructing past events, relating events together, considering causes and consequences, and making predictions and providing explanations). By the age of five, children typically use a range of different connectives to produce complex sentences (such as *and, but, if, because, when*, Diessel, 2004).

At this stage, however, children also make a variety of errors. Some are grammatical, for example using incorrect word endings (*I runned* instead of *I ran*, Marcus *et al.*, 1992), the wrong choice of pronoun (*me do it* instead of *I do it*, Rispoli, 1994), or various word-order errors in questions (*Daddy, why you don't like peas?*, *Why can he can't reach it?*, Rowland, 2007). Others are pragmatic, for example using full noun phrases (*the dog*) where pronouns (*it*) would be more appropriate (Matthews *et al.*, 2006), or using pronouns where full-noun phrases are required to avoid ambiguity (Theakston, 2012). As children's language becomes increasingly complex, further errors can be observed in the matching of words with appropriate sentence structures (for example, *he disappeared the rabbit*, to mean *he made the rabbit disappear*, Bowerman, 1988). It is important to recognise that for most children, these errors are a sign of progress rather than a cause for concern; they show that children, using trial and error, are working out the precise conditions under which particular language forms can be used, and the specific rules governing generalisation of patterns to new words and sentences (see, for example, Pine, 2015).

Environmental effects

As for simple combinatorial speech, there is good evidence that the language environment has a direct impact on the development of a child's knowledge of complex syntax. For example, studies show that when parents and teachers produce a higher proportion of sentences containing multiple clauses (*she thought it was raining; brush your teeth after you've finished your breakfast*), children show better comprehension and production skills with a variety of complex sentences themselves (Huttenlocher *et al.*, 2002). Furthermore, caregiver use of decontextualized talk (talk about the past, future, or pretence) predicts the complexity of children's narratives (Demir *et al.*, 2015). In studies which look in more detail at specific aspects of acquisition (like inflectional morphology, function words, question structures, and pronoun choice), we also see a relationship between the language children hear and their acquisition of specific structures. In general, children appear to learn more frequent forms first and make fewer errors with them (Caravanned *et al.*, 2009; Rasanen *et al.*, 2014; Rowland, 2007; see Ambridge *et al.*, 2015 for an overview). These results suggest that interventions that train parents and practitioners to talk and interact with young children, especially those that focus on promoting the use of more sophisticated language and a greater variety of sentence structures and word endings, should result in children learning to produce and understand more complex grammatical sentence types more quickly (Theakston, 2015).

Role of other cognitive developments on oral language

In the sections above, we have highlighted the environmental impacts on children's oral language development. However, it must also be noted that the development of oral language is mediated by, and in turn impacts on, developments in other cognitive domains. For example, processing speed (on tasks where infants see pictures of familiar objects, hear the name for one of the objects, and researchers measure the speed with which infants shift their gaze to the matching object) is related to early vocabulary development (Fernald and Marchman, 2012). Broader executive function (EF) skills (skills underlying the ability to plan actions and co-ordinate thoughts) are known to develop during the preschool years, but have proved difficult to measure in young children, especially because performance on traditional EF tasks tends to depend on language skills (Hendry *et al.*, 2016). Using language to talk about the mental states of others (for example, *he thinks it's going to rain*) both influences, and is influenced by, children's performance on so-called theory-of-mind or false belief tasks, where the child has to infer the beliefs of another person based on assessing what information is available to them (where this information conflicts with information known to the child) (de Villiers, 2007). In addition, interpretation of some complex sentences requires the listener to hold information in memory over time to work out the correct order of events (such as, *before you eat your dinner, go and wash your hands*), or who did what to whom (*the boy is being pushed by the girl*). Studies show that children's ability to learn non-verbal pattern sequences (here, the order in which different groups of three computer-presented 'aliens' are queueing to enter a spaceship—the children's task was to

later identify which alien triplets had appeared previously and which had not) predicts how well they comprehend certain kinds of complex sentences (Kidd and Arciuli, 2016), although evidence on the role of working memory capacity in sentence comprehension is inconsistent (see, for example, Kidd, 2013). This evidence highlights the need to design interventions in ways which are likely to enrich the child's cognitive development (reasoning, inferencing and perspective-taking skills) alongside their language, in order to establish a virtuous circle: children with better language will tend to develop better reasoning, inferencing and pragmatic skills, which in turn will help them develop better language in the future.

Measurement

Measures to determine children's complex sentence performance are generally those identified to measure the onset of combinatorial speech (see above), although researchers have designed relatively simple tasks, made available to practitioners, to elicit word endings (for example English past tense, third person marking) and test children's understanding of specific grammatical properties such as the order of events, causality, and participant role in simple and complex sentences using picture selection (for example, see <http://www.lucid.ac.uk/resources/for-practitioners/sltlearn/>).

Warning signs

Although there is considerable variation in when children master more complex aspects of sentence structure and morphology, and these skills can be difficult to assess informally, the Hanen Centre suggests that parents should consult a professional if their child isn't using some adult grammar by 30 months (such as *two babies*, *doggie sleeping*), if they are not asking questions or using full sentences (*I don't want that*, *my truck is broken*) by 36 months, or if they are not able to tell a simple story by 4–5 years.

Pre-literacy skills

In the sections above, we have covered in some detail the acquisition of oral language skills (vocabulary and grammatical knowledge). Oral language is one of three areas of early learning recognised as important in the emergence of early literacy (Whitehurst and Lonigan, 1998). Here, we summarise the evidence for links between early oral language skills and later reading ability, and highlight the contribution of (a) phonological awareness (the ability to manipulate words and the sounds within them via rhyme, (b) phoneme substitution, blending sounds together, and so on), and (c) print knowledge (awareness of the direction of print, how to use books, letter names and sounds), and their interactions with oral language, to the development of literacy. We note here that there is extensive debate in the literature over the contribution of executive function skills to early literacy (for example, Engel de Abreu *et al.*, 2014; Purpura *et al.*, 2017).

Oral language and reading

The simple model of reading (Gough and Tunmer, 1986) outlines two components to reading: accuracy of mapping print to sound (reading fluency) and in mapping print to meaning (reading comprehension). For both components, researchers have examined the influence of children's oral language skills on their reading ability. Broadly speaking, with respect to reading comprehension, oral language skills have been argued to act as an indicator of semantic knowledge, with greater understanding of the meaning of individual words and the associations between them supporting text comprehension (Taylor *et al.*, 2015). Longitudinal studies demonstrate that children with stronger vocabulary and grammatical skills (knowledge of word order and morphology) at school entry (age 4) go on to have more advanced reading comprehension skills two years later than those children with less advanced skills (Muter *et al.*, 2004), while intervention studies focusing on improving aspects of oral language (vocabulary and narrative skills) at the transition to school (age 4), lead to

improvements in reading comprehension (and phonological awareness) six months later (Fricke *et al.*, 2013).

The relationship between vocabulary knowledge and reading fluency (decoding) is, however, more complex and reflects two separable components of reading text: whole-word recognition and phonological decoding. Oral language skills are thought to have a greater influence on whole-word recognition, particularly in the case of exception words which cannot be decoded from their basic phonology. For example, children's vocabulary in later primary school (age 8–10) predicts their ability to read exception words (such as *yacht*), but not regular words (like *stop*), or non-words (for example, *creth*) which rely on decoding letter-sound correspondences (Ricketts *et al.*, 2007).

Thus, there is good evidence that children's vocabulary knowledge in the later preschool and into the school years relates to the development of components of reading. However, the relation between reading and measures of vocabulary taken early in the preschool years is less clear. A recent study suggests that although vocabulary size measured before 24 months of age was related to reading comprehension/decoding ability (a combined measure of regular, exception, and non-words), five years later at a group level it was not predictive at the individual level due to instability in relative vocabulary skills over development (Duff *et al.*, 2015), although the addition of familial at-risk factors increased the predictive validity of the early vocabulary measure. On balance, however, the evidence suggests that children who begin school with more advanced oral language skills developed in their home environment or early years setting will fare better in learning to read successfully.

Phonological awareness, oral language and reading

In order to read fluently, children need to develop a good understanding of how sounds combine together to make up words, beginning with the development of phonological awareness. A substantial body of evidence suggests that phonological awareness in preschoolers is strongly related to their later ability to read fluently, even when other skills such as vocabulary are controlled (Wagner *et al.*, 1997; Lonigan *et al.*, 2000). There are recognised relations between phonological awareness and oral language skills in the preschool years (3–5): for example, children's phonological awareness and phonological memory skills are concurrently related to their vocabulary knowledge and knowledge of narrative structure (as well as to their knowledge of print: Hipfner-Boucher *et al.*, 2014; Lonigan *et al.*, 2009; Storch and Whitehurst, 2002). There is also evidence that early vocabulary knowledge contributes to later phonological awareness, up to around four years (Lonigan, 2007), although there may be a subsequent disassociation between these skills, for example as letter knowledge develops (Lerner and Lonigan, 2016). Although full phonological awareness is essentially a metalinguistic skill—that is, it reflects a child's awareness of the nature of language—its origins may lie in developing sensitivity to rhyme and alliteration, for example as exemplified in many nursery rhymes and songs (*Hey diddle diddle, the cat and the fiddle*), and thus exposure to this kind of language input in the preschool years may be beneficial (ECRR, 2010; Harper, 2011).

Print knowledge, oral language, and reading

In addition to knowing the sounds of the language, the ability to read fluently depends on both the ability to recognise words and an understanding of letter-to-sound correspondences. Children's knowledge of print in the preschool years is concurrently related to their vocabulary (as well as to their phonological skills: Storch and Whitehurst, 2002; Dickinson *et al.*, 2003; Smith *et al.*, 2014), and is predictive of their later reading ability (Lonigan *et al.*, 2000; Muter *et al.*, 2004). The precise role of oral language skills (or indeed phonological awareness skills) in the development of print knowledge is unclear. However, there is evidence that environmental factors can influence the development of print knowledge. In three- to five-year-old children, aspects of the home environment—specifically shared book-reading interactions between caregivers and children which involve drawing attention to print—result in improved print awareness skills, even over relatively short periods (Justice and Ezell, 2002; Justice *et al.*, 2002). Similarly, early years practitioner-led interventions based around environmental print (for example, cereal boxes) using multisensory strategies with three- to four-year-

olds from different socioeconomic groups result in similar gains in print awareness skills (Neuman *et al.*, 2013; Neumann, 2016).

Early writing

Prior to five years of age, children's writing skills are fairly rudimentary. However, there is some evidence that four-year-old children with better phonological awareness and knowledge of print are also more likely to be able to write their name correctly, although only their print-related skills accounted for significant variance in performance (Welsch *et al.*, 2003).

Summary

In this review, we have highlighted evidence showing that at all levels of communicative development in the preschool years (0–5), the right environmental support has the potential to make a real difference to children's language learning, and consequently to their later academic success. However, ensuring that all children benefit from rich environmental support requires a coherent approach. First, *cost-effective, evidence-based training* and interventions that promote the most effective types of language-boosting interactions between children and those caring for them (parents and early years practitioners) are needed to ensure that all children have the best possible chance of reaching their full potential. (As we see in Chapter 4 below, a variety of language boosting environments in early years settings can work to mitigate problems in a child's home environment.)

Second, *effective monitoring* of children's progress at different stages of communicative development is needed to catch those children falling behind quickly, whatever their stage of development. As the review indicates, it is currently difficult to identify children who will have persistent language difficulties, yet these are the children who require targeted, specialist support. Developing sensitive and effective monitoring tools will require investment in research as we currently do not know enough about the precise relations between different aspects of communicative development. Moreover, developing the right measurement tools for communication is complex because what we need to measure changes constantly throughout the preschool years.

Third, simply providing training to encourage parents and practitioners to use language-boosting strategies on its own does not necessarily mean these strategies are put into practice and result in gains for children. All interventions require a *consistent approach to evaluation*. The broad theoretical approach in which this review is framed is based on the assumption that socially meaningful interactions support early communicative development. However, as should be clear, the nature of these supportive interactions will need to change to suit the child's current level of development: what works to engage a baby in joint attention over an object to facilitate word learning may be very different from an optimal approach to encouraging the use of complex sentences, or developing phonological awareness and print knowledge. For this reason, developing effective training, monitoring, and evaluation requires a *close link with the theoretical framework informing current research*.

A summary of typical development of oral language from 0–5 years may be found in Appendix D.

Chapter 3: Models of identification

Chapter Summary

The most recent prevalence figures for preschool language difficulties summarised in this review fall between **7 and 14%** depending on the age, thresholds adopted, and the measures used. These figures are highly sensitive to social disadvantage. In lower socio-economic groups (however defined) the figures are much higher.

Studies have demonstrated that there is a great deal of individual variability in language as it develops, some children starting well and dropping behind, others starting very slowly and catching up. This finding has been replicated in a number of studies, each finding similar rates in the preschool years of approximately 70% of children with low language abilities having **resolving difficulties** and 30% **persisting difficulties**. A small late-emerging group also exists who appear to have a good start but then fall behind their peers later in development.

We can also look at the current level in England by looking at the proportion of children not meeting expectations for the communication, language, and literacy skills (CLL) on the Early Years Foundation Stage measure. Across the whole of England in 2015, approximately 14–18% of children were not meeting expected levels at age 4–5.

The authorities with the highest proportion of children not meeting CLL expectations were Middlesbrough, Oldham, Rochdale, Bolton, Manchester, and Blackburn with Darwen. Those with the lowest level of need were Richmond upon Thames, Kingston upon Thames, North Somerset, Gateshead, West Berkshire, Hampshire, and Wokingham. These figures are also sensitive to social disadvantage. In England, children who were eligible for free school meals were **2 times more likely not to achieve expected levels of CLL than children who were not eligible for FSM**. LAs differ in the proportion of children eligible for FSM who do not reach expected levels.

Included within the group of children not meeting expectations for the CLL, a number also have English as an Additional Language when they start school but are likely to drop out of this group (i.e. their language and literacy improves considerably) thereafter.

Rather than splitting the preschool population into those with language difficulties and those without at an arbitrary threshold score, there is a need to develop and evaluate models of services wherein the **continuum of risk** is acknowledged and there is an accompanying **continuum of response** in terms of the amount and type of intervention offered.

Estimating the level of need

Estimating the number of preschool children whose language development is of concern and who may benefit from additional support is less straightforward than it might appear. First, we must be able to reliably identify those children whose language development is significantly poorer than their peers. Second, we need to identify which of those children will require additional help to catch up and which will do so without additional support. Third, we need to understand if and how the level of need varies at different ages and in relation to factors thought to put children 'at risk' of poor language development such as social disadvantage, low birth weight, or hearing impairment. A further complexity is the need to account for children who perform poorly on assessments of language abilities because they speak English as an Additional Language (EAL). Given sufficient exposure to English, the vast majority of children with EAL will catch up with their peers (McKean *et al.*, 2015), however in the preschool years many will perform poorly on assessments of English Language ability.

To identify which of this group may have language difficulties it is necessary to determine whether they have difficulties in all the languages they speak.

The most recent systematic review of studies of the prevalence of language difficulties—that is, the proportion of children in a population at a given time with difficulties—was completed in 2000. In this review, Law and colleagues found that estimates in preschool children (5 years and under) varied from 2% to 19% (Law, Boyle, Harris, Harkness, and Nye, 2000).

This very wide range in estimates has a number of possible explanations including differences between studies in the age of the children, the measures used, the thresholds applied below which a child is identified as having ‘difficulties’, the nature of the population sampled, and whether the figures were derived from the child’s tested performance or parental report of concern.

Since that time, few studies have been conducted with the specific aim of estimating the prevalence of preschool language difficulties. A notable exception is the work of Norbury and colleagues (2016) which found that 9.9% of four- to five-year-olds in a community sample in Surrey had difficulties with language development, and of those, 7.6% had no associated intellectual disability or medical diagnosis such as Autism or ADHD. However, this study does not speak to prevalence below the age of four to five. Furthermore, it must be borne in mind that Surrey is one of the least deprived local authority areas in England, being ranked as 150 of 152 in the 2015 Indices of Multiple Deprivation (where 1 is most deprived) and is less ethnically diverse than England as whole.² It is therefore difficult to generalise these figures to the wider population in England.

Since the review of Law and colleagues in 2000 there has been a significant increase in the number of representative *population* or *community-ascertained* samples that have measured early child language development. These offer an unprecedented opportunity to derive valid prevalence estimates across the preschool years. Below, we summarise findings from the population or community-ascertained samples that have been published since the year 2000 with respect to the prevalence of language difficulties in preschool children (0–5 years).

In some studies, reports of parental concern about their child’s language abilities or use of speech and language therapy services are used to identify children with language difficulties (Harrison and McLeod, 2010). However, this approach risks providing biased estimates as it is clear that parental concern and access to services are not reliable indicators of a child’s level of need (Skeat, Eadie, Ukoumunne and Reilly, 2010; Skeat *et al.*, 2014) and access to services is closely linked to a family’s SES (Morgan *et al.*, 2016). In Table 3.1 below we therefore summarise the prevalence of language difficulties in preschool children (0–5 years) found in representative population or community-ascertained samples using only direct language testing or validated parent report tools.

As can be seen in Table 3.1, the reported prevalence estimates—varying from 2.9% to 20.7%—are similar to those found in 2000. When reviewing these studies, it is clear the difficulties encountered by Law *et al.* with respect to differences in measures used and thresholds below which to classify children as having language difficulties remain. In the studies reviewed here, this threshold varies from scores equivalent to the lowest 2% of scores on a standardised test (Law, Rush, Schoon and Parsons, 2009: prevalence of 4.1% at 5 years) to the lowest 16% (Harrison and McLeod, 2010: prevalence of 14.7% at 4–5 years). In longitudinal studies of child outcomes there is evidence for long-term negative consequences into adolescence and adulthood for children entering school with language abilities falling in the lowest 16% or 10% of scores (Beitchman *et al.*, 2001: lowest 16%; Tomblin, 2008: lowest 10%) and so a more inclusive approach would appear to be warranted. However, this does not come without challenges and these will be considered below.

Using the median prevalence across these studies as our best estimate it would appear that across the preschool period the prevalence of children falling significantly behind their peers in their language development ranges from 7% to 14%, varying slightly with age.

² www.gov.uk/government/statistics/english-indices-of-deprivation-2015

Table 3.1: Prevalence of language difficulties in children 5 years and under in Representative Population or Community Ascertained Samples using direct testing or validated parent report tools

	18 months	24 months	30 months	3 years	4–5 years
Median (%)	11.5 ^{a, b}	14.3 ^{c, d, e, f}	10.9 ^{a, b}	7 ^{g, h}	10.7 ^{g, l, j, k, h, l, m, n}
Range (%)	8.7 ^a - 14.3 ^b	10.7 ^c – 19.7 ^f	8.6 ^a – 13.2 ^b	5.9 ^g - 8.0 ^h	2.9 ^g – 20.7 ^j

Studies, measures and thresholds

- a. Henrichs *et al.* (2011): < 10th centile Language Development Survey (LDS) expressive language.
- b. Ghassabian *et al.* (2014): < 15th centile LDS.
- c. Whitehouse, Robinson and Zubrick (2011): < 15th centile LDS.
- d. Zubrick, Taylor, Rice and Slegers (2007): > 1SD below the mean Ages and Stages Questionnaire (ASQ) OR ASQ item—not combining words.
- e. Rice, Taylor and Zubrick (2008): < 15th centile LDS OR LDS or ASQ items—not combining words OR > 1SD below mean ASQ composite.
- f. Reilly *et al.* (2007): < 10th centile CDI.
- g. Law, Rush, Anandan, Cox and Wood (2012): > 1.5 SD below mean British Ability Scales naming vocabulary scales.
- h. Zambrana, Pons, Eadie, and Ystrom (2013): > 1.5 SD below mean ASQ composite.
- i. Law, Rush, Schoon and Parsons (2009): > 2 SD below mean English Picture Vocabulary Test.
- j. Reilly *et al.* (2010): > 1.25 SD below mean receptive OR expressive subtest of Clinical Evaluation of Language Fundamentals – Preschool 2.
- k. Christenson, Zubrick, Lawrence, Mitrou, and Taylor (2014): > 1.5 SD below mean Peabody Picture Vocabulary Test (PPVT).
- l. Norbury *et al.* (2016): > 1.5 SD below mean on 2/5 measures of composite comprising: Child Communication Checklist, Expressive One Word Picture Vocabulary Test, Receptive One Word Picture Vocabulary Test, School-age Sentence Imitation Test.
- m. Harrison and McLeod (2010): > 1SD below mean PPVT.
- n. Zubrick, Taylor, and Christensen (2015): < 15th centile PPVT.

Stability of language profiles

When considering the prevalence figures in Table 3.1 it is tempting to conclude that there is a group of approximately 10% of children who have difficulties with language throughout their preschool years, and so it is the same children, more or less, presenting with difficulties at each age. However, this is not the case.

Studies that follow children’s language progress longitudinally have demonstrated that there is a great deal of individual variability in the nature of preschool language development pathways. For many children, this is good news. For example, Reilly *et al.* (Reilly, McKean and Levickis, 2014) found in the community ascertained cohort of the Early Language in Victoria Study (ELVS) that approximately 70% of children with language difficulties at age 2 (often labelled ‘late talkers’) had caught up with

their peers by the age of 4 (see Figure 3.1). Children with problems only with expressive language (the ability to use words and sentences) and not with receptive language (the ability to understand what is said) are particularly likely to ‘grow out’ of their difficulties.

This finding has been replicated in a number of studies, each finding a similar rate of approximately 70% of children with *resolving difficulties* and 30% of children with *persisting difficulties* at a range of ages: from 18 to 30 months (Ghassabian *et al.*, 2014; Henrichs *et al.*, 2011), from 3 to 5 years (Law *et al.*, 2012; Zambrana *et al.*, 2014), and from 4 to 6 years (Zubrick *et al.*, 2015).

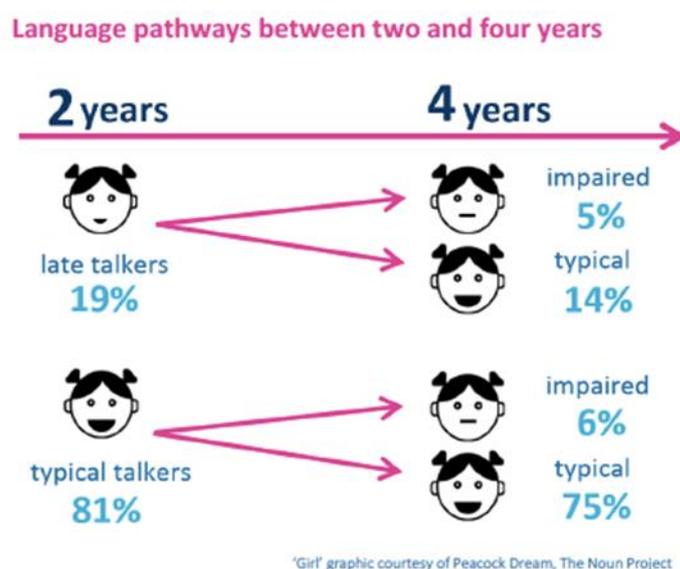


Figure 3:1 Language Pathways between 2 and 4 years in the Early Language in Victoria cohort (ELVS) (reproduced with permission, Reilly, S., McKean, C., and Levickis, P., 2014).³

However, as well as children ‘growing out’ of their difficulties, it is also clear that some children can ‘grow into’ them, appearing to have a good start but then falling behind their peers later in development. Again, this ‘late emerging’ group was evident in children between 18 and 30 months (Ghassabian *et al.*, 2014; Henrichs *et al.*, 2011), 3 and 5 years (Law *et al.*, 2012; Zambrana *et al.*, 2014) and 4 and 6 years (Zubrick *et al.*, 2015). As can be seen in Figure 3.1, approximately half of the children in the Early Language in Victoria Study with difficulties at 4 years were ‘typical talkers’ at age 2. This complex picture of individual variability in preschool language development pathways is one of the key challenges for the design of preventative services.

Once children enter school their relative language ability appears to be more stable than in the preschool years (Bornstein, Hahn and Putnick, 2016). Although there is significantly more stability from age four to five onwards (Bornstein *et al.*, 2016; Tomblin, Zhang, Buckwalter, and O'Brien, 2003) many children continue to move in and out language difficulties between four and seven years (McKean *et al.*, 2017; Zubrick *et al.*, 2015). For example, when following the same children as represented in Figure 3.1 from four to seven years of age in the ELVS cohort, we continue to find instability in language status—that is, 4.7% of children have language difficulties at both four and seven. However, 5.6% have language difficulties at age seven but not at age four, and 4.0% have difficulties at age four but not at age seven. Overall, once children enter school, children with higher abilities remain high and those with low remain low. The instability found here is, in part, due to

³ www.mcri.edu.au/research/centres/centre-research-excellence-child-language. Language Impaired is defined as a score falling more than 1.25 SD below the mean on the core language score of the CELF-P2 (Wiig, E. H., Secord, W. A., and Semel, E., 2006)

children making small changes which place them either just above or just below the cut-point where language difficulties are defined. This must be borne in mind when designing methods to identify children in need of additional support.

Some have therefore suggested that interventions should not be provided until we can be more certain that a child has persistent difficulties (Norbury, 2015). It is not clear, however, what age this would be. Importantly, the effects of environmental influences on children's relative language abilities start early (Fernald, Marchman and Weisleder, 2013; Hoff, 2003) and may have 'played out' a large proportion of their effects by the age of 4. If we are to leverage these factors for preventative interventions, therefore, we need to do so early in development (Bornstein *et al.*, 2016; McKean *et al.*, 2015; McKean *et al.*, in press). Waiting until the child enters school potentially misses an important opportunity to provide preventative interventions that harness the social determinants of language development.

Level of need in children living with social disadvantage

Another key factor that must be considered if we are to understand the level of need in the preschool population is the distribution of language difficulties across the social gradient. Studies that consider the prevalence of language difficulties in socially disadvantaged communities consistently demonstrate higher prevalence than in the population as a whole (Basit, Hughes, Iqbal and Cooper, 2015; Law, McBean and Rush, 2011; Locke, Ginsborg and Peers, 2002). Studies that purposively sample schools and nurseries working with socially disadvantaged families have reported prevalence of language difficulties of 30% to 50% in preschool children (3 to 5 years). Although important and, indeed, concerning, it is difficult to generalise these figures to the wider population as it is not clear whether they hold for only the most disadvantaged groups and to what degree they are specific to the samples in the studies.

To address this issue, Law and colleagues recently calculated the prevalence of language difficulties in five-year-old children at differing levels of social disadvantage across the whole population in a number of representative samples (Law, Todd, Clark, Mroz and Carr, 2013). Using a cut-point of scores falling more than 1 SD below the mean on a standardised test to define language difficulties, if there was no association between social disadvantage and child language difficulties we would expect to see a prevalence of 16.6% at each quintile. However, Law and colleagues identified a gradient relationship between the numbers of children with language difficulties and the level of social disadvantage across the distribution. Hence with each increase in the level of disadvantage there is an associated increase in the numbers of children experiencing language difficulties (see Table 3.2 below).

Cohort	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Millennium Cohort Study	18	10	7	5	3
Growing up in Scotland	23	18	15	11	10
Early Language in Victoria Study	21	16	7	12	6

Table 3:2: Prevalence of Language difficulties (%) at 5 years at each quintile of social disadvantage with a threshold of one standard deviation below the mean (reproduced with permission Law, Todd, Clark, Mroz and Carr, 2013).

It is important to note that there is a large degree of overlap in the range of language abilities found at each level of disadvantage (Figure 3.3). Hence there are very large numbers of children in the most socially disadvantaged groups who *do not* experience language difficulties and significant numbers even in the most socially advantaged groups who do. Given that social disadvantage is often

geographically clustered, however, this does mean that some schools and nurseries will have very high levels of children in need while others will not.

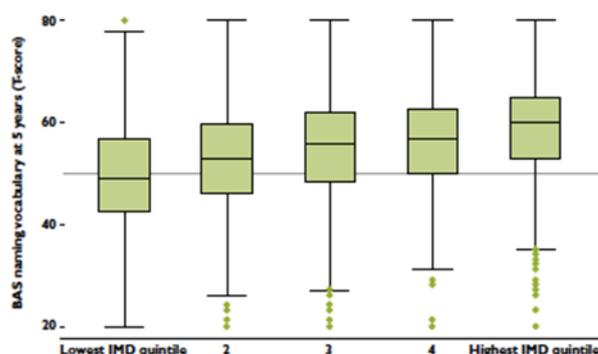


Figure 3.3: Distribution of language scores (British Ability Scales Vocabulary naming Score) across the quintiles of the indices of multiple deprivation at 5 years in the Millennium Cohort Study (reproduced with permission Law, Todd, Clark, Mroz and Carr, 2013, see footnote **Error! Bookmark not defined.**).

It has been suggested that, for some children living with social disadvantage, the low scores achieved during standardised testing do not reflect language difficulties. Rather, they may represent unfamiliarity with the testing context or problems with ‘executive functioning’—that is cognitive skills linked to attention, memory, and inhibition (Roy and Chiat, 2012; Ryan, Gibbon and Oshea, 2016). Whatever the underlying cause of these difficulties, however, they are likely to represent issues related to a child’s ability to process language in the classroom and meet the oral language demands of formal schooling.

Estimating the current level of need in England

The best available population-level data with which to estimate current need in England is the statutory data collected using the Early Years Foundation Stage Profile (EYFSP) when children are aged four to five years. It is not clear how the EYFSP maps onto the tests of language ability used in the studies above in terms of both its reliability and the threshold at which children are thought to be achieving ‘expected levels’, nor indeed how accurate it is in profiling the child’s abilities. However, it provides an opportunity to consider the distribution of language abilities across local authorities in England, and to explore the relevance of factors such as FSM eligibility and EAL status.

Using data taken from the Department for Education Statistical Release (2016), we can see that across the whole of England in 2016 approximately 14% to 18% of children are not meeting expected levels at age four to five (Table 3.3).

Table 3.3: Proportion of children (%) in England not meeting at least expected levels in EYFSP Communication and Language Goals 2016

Communication and Language Learning Goals				
	Listening and Attention	Understanding	Speaking	All C and L Learning goals
Proportion not achieving at least expected levels	13.7	14.1	14.9	18.4

Across local authority (LA) areas, the proportion of children not meeting at least expected levels across all Communication and Language Learning Goals in 2016 ranges from approximately 25% to 28% (in Middlesbrough, Oldham, Rochdale, Bolton, Manchester, and Blackburn with Darwen) to 7% to 13% (in Richmond upon Thames, Kingston upon Thames, North Somerset, Gateshead, West Berkshire, Hampshire, and Wokingham). In only 4% of LAs are more than a quarter of children not achieving expected levels in the CLL goals. As is found in the analyses of population samples described above, these findings, in general, follow the social gradient with a statistically significant association between the number of socially disadvantaged children in a LA and those experiencing language difficulties (Spearman correlation between the proportion children receiving FSM and proportion not meeting expected CLL goals, $r_s = 0.634$, $p < 0.001$).

However, it must also be noted that many of the LAs with the highest level of need (as defined by these figures) have a large proportion of EAL children. This is also likely to increase the numbers of children recorded as not reaching expected levels. A statistically significant association exists, but the association between the proportion of EAL children and the proportion not meeting expected CLL goals is less strong than for the FSM pupils (Spearman correlation, $r_s = 0.242$, $p = 0.003$).

To explore this question further we analysed anonymised individual pupil-level data from the NPD using logistic regression to calculate the degree to which being in receipt of free school meals (FSM) increased the likelihood (odds) of not achieving expected levels in CLL.

Across England as a whole, being in receipt of free school meals increased the likelihood of not achieving expected levels of CLL by 2.09 times (OR = 2.09 [95% CI: 2.05–2.12], $p < 0.001$). So FSM children were twice as likely to be identified as having communication needs than their non-FSM peers.

We then explored whether EAL status contributed to the variability and found that that it did, in small measure. We also wanted to ‘adjust’ for its influence in our estimates of the effects of FSM to make sure our findings were not biased by the number of children with EAL who also receive FSM. Adding this to the model, however, made minimal difference to the overall effect of FSM on the likelihood of not achieving expected levels in CLL. We can therefore say our estimates of the effect of FSM on the likelihood of not achieving CLL goals is not affected by children’s EAL status. For the following analyses of the effect of FSM, the unadjusted results are therefore reported.

It is important to understand whether there are differences between LAs in the numbers of children not achieving expected levels while taking into account the level of social disadvantage to determine whether some are meeting the relevant challenges more successfully than others and why that may be the case. To explore this question, we again employed logistic regression to calculate the degree to which being in receipt of free school meals increased the likelihood of not achieving expected levels in CLL for each LA.⁴

In Figure 3.3 below, we use odds ratios (OR) to map the likelihood of FSM children not achieving such expected levels for each LA. An OR of 1 would indicate that a child receiving FSM is equally likely to achieve expected levels as a non-FSM peer in that LA; a score of 2 that they are twice as likely to not achieve expected levels, and so on.

Odds ratios ranged from 1.00 to 3.5. These were used to group LAs into four categories represented by four colours which were then plotted onto a map of England, as shown in Figure 3.3.

⁴ A relatively large amount of data regarding children’s majority language was missing (9.7%) and this was not missing at random (i.e. some LAs had much more missing data than others). Given our finding above that the addition of EAL to the model did not substantively change estimates of the effect of FSM on CLL outcome, these analyses are therefore based on unadjusted ORs.

The Odds Ratios categories are:

1. $\geq 1 \leq 1.5$
2. $OR > 1.5 \leq 2.0$
3. $OR > 2.0 \leq 2.5$
4. $OR > 2.5$.

In Figure 3.3, the lighter the colour, the lower the OR. The OR for England was 2.09 and so categories 1 and 2 can be seen as falling below the level for England (hence the effect of FSM is less than for the country as a whole for these LAs) and those in 3 and 4 falling above (hence the effect of FSM is higher than for the country as a whole).

The range in the increase in likelihood of children receiving FSM not achieving CLL expected levels is not wide and the majority of LAs performed close to the national level. When considering the 95% confidence interval (CI) of the OR scores for each LA, 90 out of 149—60% of LAs considered in the analysis—had scores which included the OR of 2.09: *in other words, 60% of LAs were not significantly different than the picture for England as a whole.*

Table 3:4 presents data from LAs at the more extreme ends of the range of scores found. It summarises the top and bottom 15 LAs ranked according to the likelihood (odds ratio) of children receiving FSM *not* achieving expected levels in EYFSP Communication and Language Learning (CLL) goals.

These figures must be interpreted in light of the levels of children not achieving expected CLL goals and the proportion of FSM children in the LA. An LA may have a high OR with a low level of children not achieving (see for example Hampshire, York, Wokingham, Bracknell). In these cases, it would appear that a high proportion of FSM children are not achieving expected levels (for example 30%) while a small number non-FSM children are not achieving as expected (for example 11%).

Conversely, a LA may report a low OR with a high proportion of children not achieving as expected (see for example Kingston upon Hull or Coventry). In these cases, a significant but smaller proportion of FSM children do not reach expected CLL levels (for example 20%), however a significant number of non-FSM children also fall short of expectations (for example 20%). A more mixed picture exists in these LAs in terms of factors associated with falling below expectations.

FSM eligibility may not be a sufficiently sensitive measure to capture the full range of social disadvantage in a given LA and its effects on CLL outcomes. For example, it is likely that a large proportion of children in Kingston upon Hull who do not receive FSM are still relatively disadvantaged when compared to those not receiving FSM in Wiltshire. Furthermore, our models suggest that other factors, over and above FSM, are likely to influence children's outcomes. Further research exploring these factors is recommended.

However, it is also clear that some LAs appear able to promote higher rates of success within the population of FSM children than others, and it is not necessarily those areas with more advantaged populations who achieve this. An example is the very low increase in odds found in Newham and Haringey.

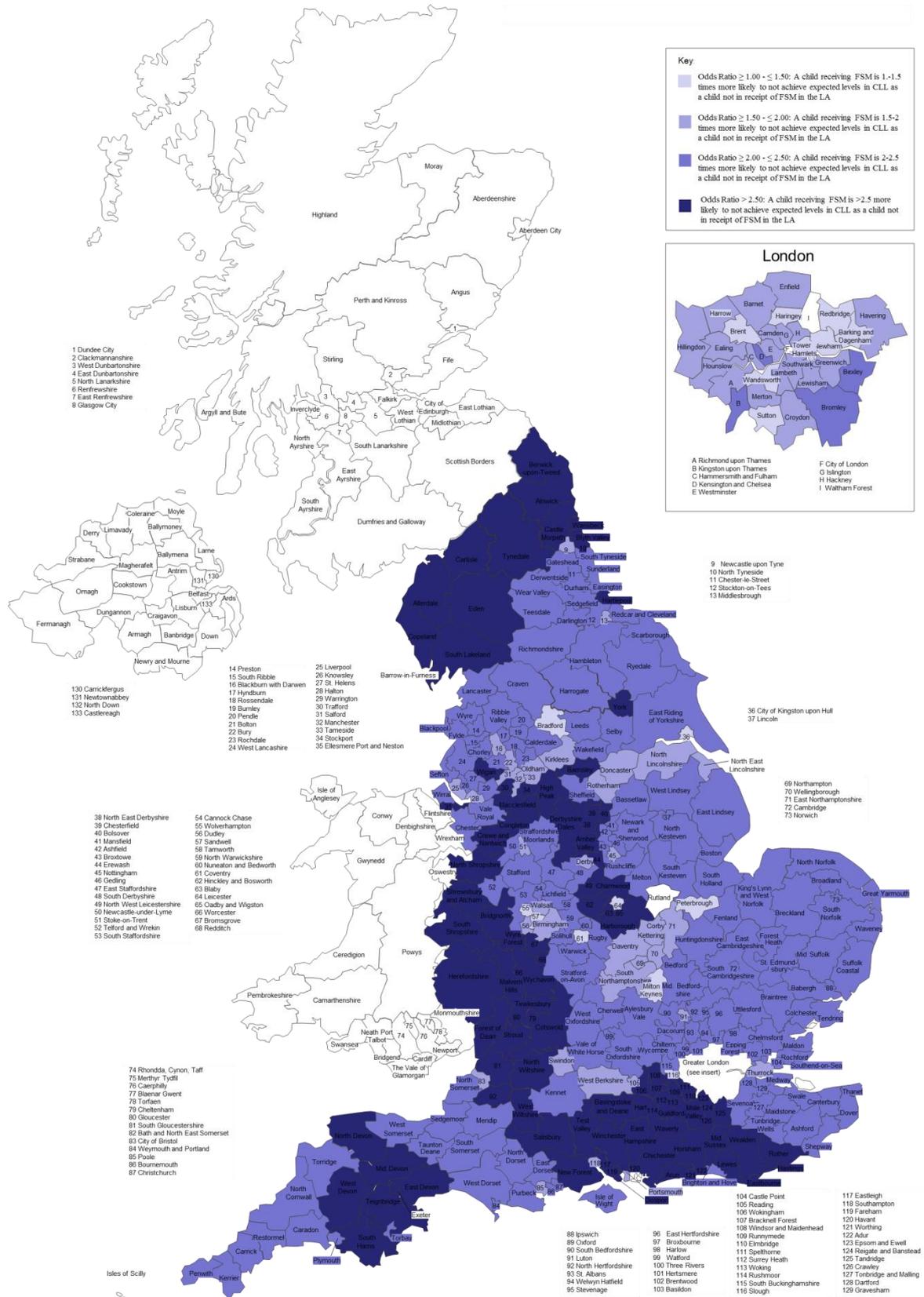
The picture is clearly a complex one and warrants future research. Identifying why, in some LAs, FSM status places children at a high risk of not reaching expected levels whereas in others it does not would clearly be valuable in terms of potentially identifying factors which may benefit children across LAs at risk of poor outcomes. It is likely that the level of detail provided for our five case sites in Chapter 5 is needed to tease out the explanations of these differences.

Table 3.4: The top and bottom 15 LAs ranked by prediction of not achieving CLL goals

	LAs ranked by likelihood of FSM child <i>not</i> achieving expected level CLL	Odds Ratio [95% CI]	% not achieving CLL	% FSM	% receiving FSM and not achieving CLL	% not receiving FSM and not achieving CLL	N
Lowest 15 <i>(lowest effect of FSM on outcome)</i>	Newham	1.00 [0.81, 1.24]	18%	14.1	16.8	16.8	4914
	Barking and Dagenham	1.14 [.090, 1.44]	20.6%	12.6	21.8	19.7	3651
	Haringey	1.14 [.90, 1.47]	18.2%	15.4	19.4	17.4	3147
	Slough	1.17 [0.84, 1.63]	17.7%	10.4	19.2	16.9	2433
	Leicester	1.18 [0.98, 1.42]	17.3%	15.0	25.9	22.9	4619
	Wolverhampton	1.22 [1.02, 1.46]*	24.7%	22.7	26.8	23.0	3475
	Peterborough	1.27 [1.03, 1.57]*	24.6%	17.0	27.8	23.3	3037
	Sutton	1.27 [1.07, 1.51]***	18.1%	7.7	27.6	17.1	2524
	Tower Hamlets	1.27 [1.07, 1.51]**	22.2%	30.2	24.8	20.6	3370
	Kingston upon Hull, City of	1.34 [1.117, 1.618]**	23.7%	21.7	27.6	22.1	3393
	Brent	1.35 [1.06, 1.72]**	21.8%	9.7	25.5	20.3	3905
	Coventry	1.36 [1.15, 1.62]***	22.5%	18.1	26.5	20.9	4548
	Redbridge	1.42 [1.05, 1.91]**	16.6%	6.7	20.4	15.3	4172
	Bradford	1.44 [1.25, 1.65]***	20.1%	16.8	24.8	18.6	7847
	Milton Keynes	1.44[1.14, 1.82]**	18.3%	11.6	23.2	17.3	3959
Highest 15 <i>(highest effect of FSM on outcome)</i>	Northumberland	2.85 [2.27, 3.59]***	15.5%	13.2	30.2	13.2	3336
	Surrey	2.85 [2.47, 3.30]***	13.6%	7.4	28.4	12.2	13447
	South Gloucestershire	2.88 [2.17, 3.82]***	18.6%	7.9	28.9	12.4	3406
	Trafford	2.89 [2.18, 3.83]***	14.1%	8.8	29.5	12.6	3069
	North Somerset§	2.91 [2.07, 4.10]***	11.8%	8.1	25.2	10.4	2498
	Hampshire	2.92 [2.55, 3.34]***	12.5%	8.0	26.9	11.2	15613
	North Tyneside	2.92 [2.28, 3.74]***	18.6%	15.1	34.9	15.5	2385
	Wiltshire	2.96 [2.38, 3.69]***	14.6%	7.6	30.8	13.1	5669
	Wokingham§	2.99 [1.81, 4.94]***	12.6%	3.7	28.4	11.7	2113
	Cheshire East	3.03 [2.36, 3.89]***	16.8%	7.1	35.3	15.2	4215
	Solihull	3.04 [2.43, 3.82]***	18.5%	14.8	35.3	15.2	2838
	Stockport	3.07 [2.50, 3.78]***	19.7%	13.6	37.5	16.3	3529
	Windsor and Maidenhead§	3.14 [2.00, 4.93]***	13.1%	5.9	28.8	11.4	1650
	York§	3.49 [2.50, 4.88]***	13.2%	9.8	30.7	11.2	1997
	Bracknell Forest§	3.54 [2.29, 5.46]***	13.3%	7.6	31.5	11.5	1448

Note: excludes LAs with < 500 children (Isles of Scilly; City of London; Rutland); § interpret results with caution due to large CI likely linked to low % FSM and/or low N; * p < 0.05; ** p < 0.01; *** p < 0.001.

Figure 3.3: Map of England displaying varying degrees of likelihood of children on FSM not achieving expected goals in CLL as indicated by Odds Ratio (the lighter the colour the lower the odds ratio)



Note: Map excludes LAs with < 500 children (Isles of Scilly; City of London; Rutland).

Methods for identifying children in need of additional support

As is clear from the challenges above, identifying which preschool children would benefit from interventions is far from straightforward. Providing interventions universally, to all families, can serve to widen rather than narrow inequalities. For example, a meta-analysis by Mol and Bus (2011) demonstrated that interventions to promote an interactive ‘dialogic’ style during parent–child shared book-reading do improve language outcomes for children aged two to three years but only for families classified as not ‘at risk’ in terms of their level of social disadvantage. Marulis and Neuman (2013) similarly report that more disadvantaged children are less likely to benefit from vocabulary interventions than their more advantaged peers, although in this review there were positive effect sizes for both more and less disadvantaged groups. This does not mean that interventions should not be provided, rather that they must be appropriately targeted and proportionate to those who need it most rather than universally applied, and tailored to be readily accessible and acceptable to the most disadvantaged families (see Chapter 3 below).

A targeted approach would therefore seem appropriate, but it is not clear which children should be targeted and how this should be achieved. The use of universal screening instruments assessing preschool children’s language and communication abilities in order to target interventions have not proved sufficiently reliable for their use to be recommended (Siu, 2015). The high degree of variability in the nature of children’s language trajectories in the preschool years is particularly challenging (Reilly, McKean, *et al.*, 2014; Reilly, Tomblin, *et al.*, 2014; Reilly *et al.*, 2010). Hence targeting *only* according to child factors (such as their language ability or use of gesture) is problematic.

Targeting *only* according to social risks is also problematic. Given that language difficulties occur across the social spectrum, focusing solely on the most disadvantaged will only tackle a small part of the problem (Marmot *et al.*, 2010) and could waste resources on many children who do not need support.

In the recent multinational and multidisciplinary Delphi consensus study, ‘Criteria and Terminology Applied to Language Impairments: Synthesising the Evidence’ (CATALISE), the recommendation emerged that intervention should be provided for children whose language difficulties are likely to persist and/or who experience ‘functional limitations’ such as poor educational attainment, limited everyday communication, social relationships, and quality of life (Bishop, Snowling, Thompson, Greenhalgh and CATALISE-2 consortium, 2016; Bishop, Snowling, Thompson, Greenhalgh and CATALISE consortium, 2016) as they move into the school years. However, as yet no methods exist to reliably identify these children.

A continuum of response to a continuum of need

Rather than splitting the preschool population into those with language difficulties and those without at an arbitrary threshold score, there is a need to develop and evaluate models of services wherein the *continuum of risk* is acknowledged and there is an accompanying *continuum of response* in terms of the amount and type of intervention offered. This would address the issue of children moving ‘just above’ an arbitrary threshold and becoming ineligible for support when, in reality, their language abilities remain low in comparison to their peers. It would also extend access to support to those with milder difficulties which longitudinal studies suggest place children at risk (Beitchman *et al.*, 2001: lowest 16%; Tomblin, 2008: lowest 10%).

In such service models, an element of over-servicing would be inevitable, but the success or failure of this more gradient approach would need to be judged with respect to its ability to prevent later difficulties for a significant proportion of children at risk in a given population rather than its accurate ‘diagnosis’ of individual children with language difficulties. The more lenient approach to establishing a level of language ability below which to offer support recommended above could therefore come with a cost where a significant number of children who do not need services may receive them.

However, currently we do not know if this is the case and robust evaluation studies incorporating costs and benefit analyses are required.

Currently there is no reliable method to estimate a child's level of risk. However, there are some emerging approaches which show promise but which require further development and testing:

Integrating child, family and parenting factors to estimate a child's level of risk.

Most screening instruments focus only on the child and not on the wider social determinants of language difficulties. Recent studies have demonstrated that supplementing such tools with *additional information about family and parenting factors* could increase their predictive validity (Hudson, Levickis, Down, Nicholls and Wake, 2015; Levickis and McKean, 2014; McKean *et al.*, 2016).

Identifying children with multiple vulnerabilities

Children who experience language difficulties in *association with other vulnerabilities* may be particularly at risk of poor outcomes. For example, children with both *language and speech difficulties* are particularly vulnerable to later literacy difficulties (Hayiou-Thomas, Carroll, Leavett, Hulme and Snowling, 2016; Pennington and Bishop, 2009). These can be difficulties with decoding and/or reading comprehension. Phonological awareness is also key predictor of a child's literacy progress. Developing and evaluating methods to estimate a child's level of risk through the integration of information regarding their oral language, current or previous speech difficulties, and phonological awareness—perhaps drawing on the Phonics Screening Check—should be explored (although see Law *et al.*, 2013 for concerns about the interpretation of the Phonics Screening Check).

A child's *social and emotional development* may also be indicative of the need for additional support. In clinical samples, it is clear that children presenting to specialist services with social-emotional and mental health difficulties⁵ are at very high risk of having language difficulties, and vice versa. The strength and pattern of these associations appear to vary as children develop (Bretherton *et al.*, 2014; Lindsay and Dockrell, 2012). However, in the preschool years there appear to be bidirectional relationships between children's language and social-emotional and mental health development (Girard, Pingault, Doyle, Falissard and Tremblay, 2015): that difficulties in one exacerbate difficulties in the other. There are also some early indications that children with language difficulties and associated social-emotional difficulties may experience a worsening language profile over time (McKean *et al.*, in preparation). The effectiveness of approaches that target children's vulnerabilities in both language and social-emotional and mental health development should be explored.

Monitoring the child's rate of language progress over time

Due to the degree of variability which exists in children's language development in the preschool years, with high levels of both resolution and emergence of difficulties over that period, it would appear that accurate early identification of children in need of additional support cannot be a single event. Rather, it is necessary to monitor a child's progress over time. This approach has a number of advantages. First, the *reliability* of estimates of a child's abilities is significantly increased if findings from multiple assessment tools are integrated (Bornstein *et al.*, 2016). Second, this approach would form a *safety net* within which to catch children who are missed at earlier assessment points. It might also allow the *nature of change over time* to be captured. Recent studies suggest that the severity and persistence of language difficulties and rate of progress of a child's early language development may be indicative of their longer-term outcomes (Määttä, Laakso, Tolvanen, Westerholm and Aro, 2016; Snowling, Duff, Nash and Hulme, 2015; Zambrana *et al.*, 2014).

This 'surveillance' of children's development is already completed as part of the Healthy Child Programme. The recent adoption nationally of the Ages and Stages questionnaire (Squires *et al.*, 2009)—a robust tool for monitoring children's developmental progress—is a welcome first step to

⁵ The revised SEN Code of Practice in 2014 introduced the term 'Social-emotional and mental health' difficulties to replace 'Social-emotional and behavioural' difficulties.

developing methods for targeting support for children's language development. However, studies are required to evaluate the performance of this measure as a tool for targeting support for children with language difficulties.

A priority for future research, therefore, is to evaluate methods to determine children's levels of risk of persisting language difficulties through the integration of child, family, and parenting factors together with evaluation of a child developmental pathway. Interventions which provide gradient responses to these gradient levels of risk would also need to be developed and evaluated with careful consideration of the cost and burden to families and services.

Chapter 4: Effective approaches and interventions

Chapter Summary

We carried out a review of interventions associated with language or pre-literacy in the preschool period. We looked separately at educational and psychological/health literature and we only identified intervention studies that had adopted a randomised controlled or a quasi-experimental methodology and had been published in English since 2000.

We focused primarily, although not exclusively, on studies which compared a specific intervention relative to a no-treatment or a treatment-as-usual arm. Our aim was to identify studies that had looked at whole populations or educational populations rather than populations of children identified because they had explicit 'clinical' language needs.

We identified 49 studies which met our criteria. All the studies are summarised using criteria from the What Works for SLCN database combined with an evidence rating system intended to capture how robust the literature is—or how secure are the conclusions.

We classified the studies according to:

- the focus of the interventions (primary and secondary outcomes) with four outcome categories—phonological awareness, vocabulary, expressive language, and receptive language;
- whether the studies were programmes or practices;
- who delivered the intervention;
- the location of the interventions;
- the intensity and duration of the interventions; and
- the effect size of the intervention.

We focused on four specific outcomes:

- phonological awareness (an understanding of the sound structure of the spoken language);
- expressive and receptive vocabulary (the ability to use or understand words);
- expressive language (children's ability to use language in an accurate and coherent manner); and
- comprehension or receptive language (children's ability to understand complex language forms including grammar and inferential use of language).

Introduction

We carried out reviews of the education and health literature to identify intervention literature which related to child language (both comprehension and expression) and phonological skills associated with pre-literacy which have been published in English since the beginning of 2000.

Methodology

We completed an electronic search of databases which included educational, health, and psychological interventions. These included: Medline, Psychinfo, Web of Science, Scopus, Proquest, the What Works Clearinghouse⁶ and the 2011 trends fact sheet from Child Trends.⁷

Studies were included that reported on an intervention for language using randomised or quasi-experimental (matched) designs. All the studies which we included had been published since 2000, and the mean age of the children was six years or less for the data reported. To make it easier to interpret the results, we only included studies which had a no-treatment or a treatment-as-usual comparison. Key search terms included language, delay, disorder, oral language, emergent literacy, preschool, kindergarten. Phonological skills (such as phonological awareness) are included as a component of emergent literacy.

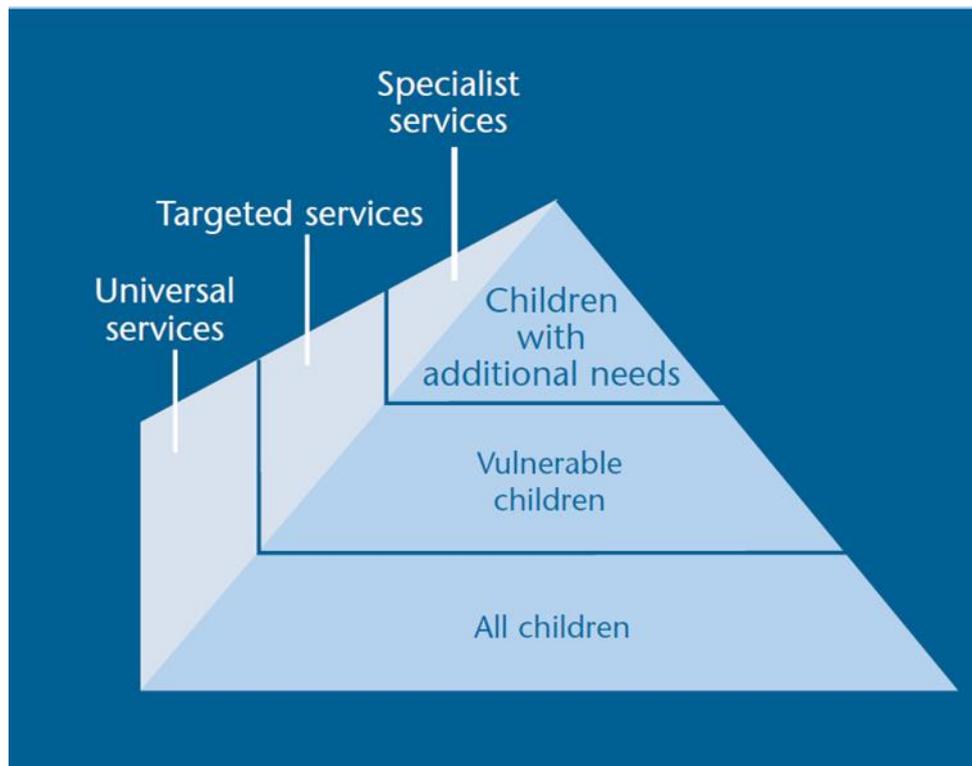
Different models of service delivery

Interventions are commonly described in terms of a 'pyramid of need' with universal services covering the whole population, targeted services covering a wide variety of children perceived to be 'at risk' for a variety of reasons, and specialist services targeting those with the most severe levels of need (as indicated in Figure 4.1 below). Table 4.1 describes the different elements of the framework in more detail with reference to the terminology in both health and educational contexts.

⁶ <http://ies.ed.gov/ncee/Wwc/>

⁷ <http://www.childtrends.org>

Figure 4.1: Hierarchical organisation of intervention for children with SLCN (Gascoigne 2006)



Such frameworks have been in common use for some time and their purpose is to simplify and schematise the way that services are delivered. In practice, they can be complex to operationalise. For example, it might be argued that a child would naturally migrate from universal to specialist services depending on their need. While this may, indeed, be true, there are some children whose needs are so pronounced that they move straight to specialist provision. In one authority, the 'local offer' may separate out the levels; in others, there may be an assumption that children are regularly monitored and step up and step down from different levels. The services issues around the local offer are discussed in further detail in Chapter 5 where an updated version of this model can also be seen as Figure 5.2.

Terminology used in education services	Terminology used in health services	Type of intervention	Level of need
Wave 1/Tier 1/ 'Quality first teaching'	Universal	Everyday practice in settings and classrooms that develops communication skills.	All children.
Wave 1/Tier 2	Targeted (selective)	A subset of a population is targeted based on demographic characteristics, ethnicity, English as an Additional Language, poverty, etc.	All children meeting the criterion.
Wave 2/Tier 2	Targeted	Small group additional intervention or 1–1 help from a trained volunteer/teaching assistant etc., often with a generic focus such as vocabulary stimulation.	Language performance just below age-related expectations (in SLCN terms) often described as 'language delay'.
Wave 3/Tier 3	Targeted	Individualised and frequent intervention with a teaching assistant trained and supported by SLT.	Struggling (in SLCN terms); has moderate speech, language, or communication difficulties, or has SLCN associated with another type of SEN such as co-occurring learning needs.
Wave 3/Tier 3	Specialist	Intensive intervention on an individual basis with an SLT, as part of 'team around' the child approach.	Highest level of difficulty; child has persistent speech, language, or communication difficulties.

Table 4.1: Descriptive framework for levels of service delivery

We consider terminology used within the framework to be reasonably self-explanatory, although it should be recognised that those developing the interventions do not necessarily describe their programmes in these terms and the reader is left to infer aspects of the method of service delivery, for example, whether it is a wave two or wave three intervention. Similarly, a programme may have been developed to use by specialist educators, for example milieu teaching/therapy, but there is no reason why it could not be used by well-supported education staff in mainstream classes. It is also the case that an intervention developed for use with preschool children just starting to speak could equally well be used with much older children at a similar language level, perhaps with general developmental needs. The key issue is that the material that is used reflects the cognitive competences of the children or young people concerned. For headteachers, and early years commissioners and practitioners, looking to commission services, guidance from specialists, such as speech and language therapists, would be useful to determine which approaches or combination of approaches would best suit the needs of the children in their settings.

How robust is the evidence?

Clearly, we need to know how much confidence to place in the results of the identified studies. There are a variety of ways of classifying such 'hierarchies of evidence'. All the interventions included are either randomised controlled trials or quasi-experimental studies meaning that children are matched on key variables before they are allocated to a treatment or a comparison group. But beyond this we have adopted a rating system to give some indication of how robust the evidence is in the studies concerned. The ratings are from five, the best kind of evidence that could be expected from a single study, to one, which denotes a study that adds little or nothing to the evidence base. The ratings largely refer to the internal rather than external validity of the findings and, as the authors of the EEF document about their padlock rating indicate, 'There needs to be some judgement on the part of the audience as to whether the finding might be generalizable to their context'.⁸ The rating is based on five criteria, namely:

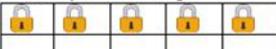
1. **design:** the quality of the design used to create a comparison group of children with which to determine an unbiased measure of the impact on attainment;
2. **power:** the minimum detectable effect (MDES) that the trial was powered to achieve at randomisation, which is heavily influenced by sample size;
3. **attrition:** the level of overall drop-out from the evaluation treatment and control groups, and potential for causing bias;
4. **balance:** the amount of balance achieved on child attainment at baseline in the children analysed; and
5. **threats to internal validity:** how well-defined and consistently delivered the intervention was, and whether the findings could be explained by anything other than the intervention.

⁸ Education Endowment Foundation (2015) 'Classification of the security of findings from EEF evaluations', London: Education Endowment Foundation.

The evidence template

We have adopted the What Works for SLCN database criteria for the description of each study. The intention is to provide the most accessible format for the use of practitioners (see Figure 4:2).

Figure 4:2 The Evidence template (adapted from the template on the What works for SLCN website)

Name of intervention	Security of the findings¹ 
Description of aims and objectives	Age range <input type="checkbox"/> 0-2 <input type="checkbox"/> 3-5
Delivery	Focus <input type="checkbox"/> Language (EXPRESSION) <input type="checkbox"/> Language (COMPREHENSION) <input type="checkbox"/> Vocabulary (EXPRESSIVE) <input type="checkbox"/> Vocabulary (COMPREHENSION) <input type="checkbox"/> PRELITERACY SKILLS - PHONOLOGY
Level of evidence	Target <input type="checkbox"/> UNIVERSAL ² <input type="checkbox"/> SELECTED Targeted ³ <input type="checkbox"/> INDICATED Targeted ⁴
References	Type <input type="checkbox"/> PROGRAMME ⁵ <input type="checkbox"/> PRACTICE ⁶

¹ The security of the findings is based on the EEF system for rating the robustness of the evidence based on five criteria: Design, Power, Attrition, Balance, Threats to internal validity outlined in detail at https://educationendowmentfoundation.org.uk/public/files/Evaluation/Carrying_out_a_Peer_Review/2015_Classifying_the_security_of_EEF_findings.pdf

² Universal means that all children receive the intervention

³ Selected targeted means that the intervention was given to all children meeting a demographic criterion [ie. criteria](#) based on geography, language social disadvantage etc.

⁴ Indicated targeted means those children identified as having a specific difficulty – [ie.](#) with language levels falling below a specific threshold

⁵ Programme means a specific publically available intervention programme

⁶ Practice means intervention strategies described in the publication but not based on a published programme as such.

Papers identified for full data extraction

The number of interventions which are relevant in the literature has increased considerably over the period covered by the review. The search identified 1,084 studies that met search criteria from titles and abstracts. Two authors independently reviewed the abstracts of these studies to determine final inclusion. The criteria for study exclusion were

- studies reporting intervention versus control group (or treatment as usual);
- generic reviews;
- studies modelling growth but which did not include an intervention;
- single case studies, or did not include language/phonology at baseline and outcome;
- studies focusing solely on special populations such as autism or stuttering;
- studies that focused on staff and did not include child outcomes; and
- those that only included literacy measures, for example print awareness/spelling or focused solely on English immersion or migrant programmes.

Forty-four studies were found to meet full inclusion criteria and these are listed in Appendix 1. Data from these studies was transferred into the evidence template (Appendix 2). The key characteristics of the studies are summarised in Appendix 3.

We identified four possible outcomes relevant to the search, and papers were group accordingly into each of four categories:

1. Phonological awareness – an understanding of the sound structure of the spoken language.
2. Vocabulary: expressive and receptive – the ability to use or understand words.
3. Expressive language: children’s ability to use language in an accurate and coherent manner.
4. Receptive language: children’s ability to understand complex language forms including grammar, inferential use of language.

Findings

The 44 studies came from the U.K., the Netherlands, Australia, the U.S.A., and Germany. All were published in English although some elements of the investigations (such as intervention descriptions) were published in one of the home languages, specifically German. Sample sizes varied considerably from 12 (Tsybina and Eriks-Brophy, 2010) to 2,250 (Apthorp), and the interventions varied considerably in terms of whether they were Universal (7), targeted – selective (20), or targeted – indicated (17). The application of these terms is extrapolated from the contents of the studies and the aims of the intervention; they are rarely specific in this way in the papers concerned. There were no specialist interventions although, of course, targeted indicated interventions could serve in this way if administered over extensive period. It is important to note that while the effects of the most of the studies were statistically significant with positive effect sizes, some of the studies did not show positive results. The nature of the outcome measures varied considerably, as indicated in Chapter 2 above, from relatively informal measures or parental report scales to standardised tests of performance

There is a variety of ways of summarising the interventions, but here we concentrate on five areas:

- the focus of the interventions (primary and secondary outcomes) in terms of four outcome categories: phonological awareness, vocabulary, expressive language, and receptive language;
- programmes and practices;
- who is delivering the intervention;
- the location of the interventions; and
- their intensity and duration.

In each case we refer to the literature reviewed, citing specific studies as appropriate. We then go on to examine the effect sizes reported in the studies concerned, raising the question of how big an effect one might anticipate from a given intervention. At the end of the chapter we identify the most promising programmes and practices, bringing together information about the size of the potential effect of a given approach with the robustness of the evidence (using the evidence rating system). We also make recommendations for the most appropriate outcomes and potential comparisons in such studies.

Focus of the interventions

The outcomes of an intervention are commonly designated as primary and secondary indicating relative salience. Accordingly, we classified the interventions in terms of their primary outcome: whether they focused on phonological awareness (an understanding of the sound structure of the spoken language), vocabulary (the ability to use or understand words), expressive language (ability to use language in an accurate and coherent manner), or receptive language (ability to understand complex language forms including grammar, inferential use of language).

Phonological awareness was an outcome of eight studies. Vocabulary was a target outcome for 20 studies and included within studies which examined both receptive and expressive skills as part of wider targets. Expressive language was a main outcome of seven studies. Receptive language was measured alongside expressive language in nine studies.

Programmes and practices

Programmes are published protocols for delivering a particular intervention. They are commonly accompanied by assessment and delivery materials and commonly have a name with which they are then associated. Practitioners delivering the programmes should adhere to the protocol and 'treatment fidelity' should be checked. In reality, where programmes are used, the whole programme is rarely adopted and practitioners customise materials. Practices are defined and recognisable activities which may be part of programmes but also may stand alone. The fidelity of such practices should also be checked although this is probably less common than it is for programmes.

Of the 44 studies, 21 were programmes and 23 were practices. In two cases (Glowkowska *et al.*, 2000; de Koning *et al.*, 2004) the nature of the intervention was not clearly specified, the former just referring to speech and language therapy, the latter to language intervention. For the purposes of the report, these have therefore been considered as 'practices'. In other cases, the details of practice and the features of the programmes are described in detail. The programmes included Read, Play Learn; Reading First; Talking Time; Lexicon Pirate; World of Words; My Sentence Builder; Talk Boost; The Instructional Phoneme Awareness Programme, and curriculum interventions such as Language Focused Curriculum, Lets Begin, and the Doors to Discovery Curriculum and a number of the Hanen Centre programmes referred to in Chapter 2 above (Learning Language and Loving It, You Make the Difference, and ABS and beyond). There are also a number of programmes with names like Parent Child Interaction therapy, and the Heidelberg Parent-Based Language intervention. With one exception, there have been no replication studies. Researchers make use of programmes they have developed themselves, those that have been developed locally, or those that are readily available but have not as yet been evaluated formally.

In terms of practices, there is a clear division between expert-based direct interventions for individual children or groups of children and those which might be called 'indirect interventions' working either through teachers and teaching support workers and, commonly in this age group, parents. To some extent the focus of the practice depends on the person delivering the intervention. Direct interventions tend to be language focused, with teaching staff focusing on 'educational' activity such as phonological awareness and preliteracy skills on the one hand, and narrative activities to promote language on the other. Parent-based activities tend to focus on parent-child interaction with some emphasis on early vocabulary development.

Both programmes and practices are often developed to reflect our knowledge of the way that language develops in young children (see Chapter 1) especially in the early years setting. Many of the more 'clinical' interventions draw extensively on behaviour modification and social learning theory with social reward systems (using praise, for example). Although the description in the study is often of the activity carried out with the child, there is commonly an explicit understanding that intervention is not

confined to one to one practice between child and ‘expert’ but relies heavily on an assumption that the intervention will transfer to other contexts with other aspects of the classroom or to the home, and a belief that the activity will feed into child development leading to incremental changes and a maintenance of the effect. That said, intervention studies rarely include long term follow-ups; when they do, they have tend to show a reduction of effects, but such effect tend to be measured in repeated measurement of the same construct rather than more developmentally advanced concepts or socio-emotional factors such as wellbeing. Sleeper effects—where there is no effect to begin with but it emerges later on in the child’s development—tend not to be observed in this field.

Who delivers the intervention?

A range of different individuals delivered the interventions. Of the 44 reviewed studies, the delivery agent was a class teacher or the teaching assistant in 24 studies. In seven studies, interventions involved parent-focused training, usually managed by a speech and language therapist or psychologist. Thirteen studies reported intervention delivery by a specialist professional, including Speech and Language Therapists, Psychologists, or Research Assistants. Although the importance of the experience and training of the person implementing the intervention has been stressed elsewhere in the literature, on early intervention this has not been a focus in this literature and there are very few studies which have sought to directly compare different delivery agents. There is an assumption that more severe language learning difficulties are best addressed by language specialists such as speech and language therapists or by assistants working directly under their instruction (Norbury, 2015). This would be at the targeted indicative and the specialist end of the range of interventions.

Location of the interventions

The interventions were generally in one of three types of location: health premises (including clinics and hospitals), child development centres, or educational facilities. Educational facilities varied from relatively informal nursery contexts to much more structured school environments. Some interventions are carried out in the children’s homes. Of our 44 reviewed studies, 29 interventions were delivered within schools, including nurseries or kindergartens. In nine cases intervention was delivered in an early years’ centre or a clinic setting. In six cases intervention was delivered in the child’s home. The combination of setting and delivery agent varied: parent-based interventions were typically delivered at home, and practitioner-based interventions in early years’ institutions, however specialised professionals such as speech and language therapists or psychologists delivered a number of interventions across both health and educational contexts.

Intensity and duration

Intervention studies varied considerably in terms of their intensity and duration. In some cases, the children attended twenty- or thirty-minute sessions twice or three times a week for around ten weeks (Lee and Pring, 2011; Washington, Warr-Leeper and Thomas-Stonell, 2011; Spencer, Petersen and Adams, 2015). Other interventions were delivered on fewer days each week, but were delivered over a much longer duration, for example one four-hour session a week for 24 weeks (Gallagher and Chiat, 2009). A number of interventions were delivered for around three months with some sessions being spread out—for example seven sessions over three months (Buschmann, Jooss, Rupp, *et al.*, 2009), or more frequent sessions, for example four days per week for several weeks (Restrepo, Morgan and Thompson, 2013). One noticeable trend was that many of the interventions delivered in classrooms involved around 15–20 minutes each day, either for several weeks (Silverman, 2007; Spycher, 2009), or throughout the whole school year (Justice, McGinty, Cabell, *et al.*, 2010; Lonigan, Purpura, Wilson, *et al.*, 2013). Clearly within-setting interventions allow for more frequent delivery as

they become part of the children's daily routine. Again, the literature has not seen many studies explicitly attempting to test the variability of response to different levels of intensity and duration. There is a tension between interventions that focus on a more intensive burst of intervention and those that follow a more distributed model.

Effect sizes

Effect sizes were reported in 29 studies and these ranged from 0.05 in relation to receptive language (Wake, Tobin, Levicks *et al.*, 2013) to 5.30 relating to children's linguistic complexity (number of different words—Piasta, Justice, Cabell *et al.*, 2012). Here, teachers' conversational responsivity in terms of the use of communication-facilitating strategies was reported to increase the amount and complexity of the children's language.

Expressive vocabulary and comprehension of vocabulary also yielded larger effect sizes (2.74 and 2.24 respectively, as reported in Gallagher and Chiat, 2009). As in previous reviews, interactive book-reading demonstrated large effects on vocabulary, with effect sizes of 1.34 (Pollard-Durodola, Gonzalez, Saenz, *et al.*, 2016), 1.8, and 1.2 (Tsybina and Eriks-Brophy, 2010). There was evidence that these effects could be supported by specific contextual manipulations such as embedding literal and inferential questions in the text. There was little evidence that simple manipulations in the ways in which words were presented to children improved vocabulary. World of Words was the only programme that demonstrated some large effect sizes—the strongest for word expressive vocabulary ($d = 0.64$), word properties (0.84), and sorting words: taught ($d = 1.16$) and untaught ($d = 0.99$).⁹ In sum, bespoke programmes which embed vocabulary learning in book-reading activities demonstrate a robust evidence base.

For expressive language, the largest effect size reported was 1.84 for expression of story events with props (Marley and Szabo, 2010). Large effect sizes for expressive language were also reported in relation to a multi-tiered language intervention programme with curriculum targets for story structure and complex language, 'Story Champs': 1.21 (Petersen, Thompson, Guiberson and Spencer, 2016) and 1.05 (Spencer, Petersen and Adams, 2015).

However, it is important to note that effect sizes within each outcome category were variable. For example, the largest effect size for phonological awareness was found to be 1.94 for one child (group mean of 1.54: Koutsoftas, Harmon and Gray, 2009), and the smallest effect size reported was 0.36 (Girolametto, Weitzman and Greenberg, 2012; Wake, Levicks, Tobin *et al.*, 2015). For vocabulary, and as referred to above, the largest effect size reported was 2.76 for expressive vocabulary (Gallagher and Chiat, 2009) and the smallest was 0.2 (Lonigan, Purpura, Wilson *et al.*, 2013). For receptive language, the largest effect size reported was 1.72 for grammar (Gallagher and Chiat, 2009) and the smallest was 0.05 (Wake, Tobin, Levicks *et al.*, 2013). Variability in effect sizes between studies and within studies (with multiple effect sizes often reported for primary and secondary outcomes) therefore makes interpretation difficult. Current evidence highlights the strength of practitioner training and involvement in intervention delivery, interactive book-reading, and story-based interventions for improving children's language skills.

The most promising interventions

Following our review of the evidence underpinning interventions for language learning difficulties, we examined possible recommendations about which interventions the EEF could usefully take forward. There are a variety of ways of doing this. For example, one can look at content domain (vocabulary, narrative, grammar, and so on) and/or the way that the intervention is delivered.

⁹ <http://www.worldofwords.co.uk/>

We have adopted the following ‘hybrid’ procedure. Initially we removed interventions where the differences between the groups were not statistically significant or the effect size for the intervention was less than 0.2 (a relatively small effect). (The full list of studies with effect sizes is given in Appendix B.) We then looked for the most common focus for intervention, in other words, the one which has attracted most attention and where there have been most studies to date. Vocabulary is unequivocally the most commonly evaluated. Vocabulary underpins both oral language comprehension and reading comprehension and there are reliable and valid measures to assess changes in vocabulary. It is also possible to devise bespoke vocabulary measures for specific targets. However, as our discussions in Chapter 2 indicate, it is clear that the context is critical for the effective use of language, and that while vocabulary is important, the ability to develop conversations and oral narrative is key. The intervention with the single highest effect size (+5.3) was the study by Piasta (2012; awarded a rating of one out of five for security of findings) on the impact of professional development on early years practitioners’ conversation responsivity and children’s linguistic productivity and complexity. This was based on a Hanen programme (again cited in Chapter 2)—Learning Language and Loving It—which also appears independently in a study by Girolametto and colleagues (2003; evidence rating: 1/5), which reports effect sizes that are not as high, but three of them are very high—above 1.0. Learning Language and Loving It also appears in a third study by Cabell (2011; evidence rating: 3/5), although in this case a significant effect of vocabulary, no effect sizes were reported. Thus, there would seem to be a strong case for developing this approach into an effectiveness trial. Another study with positive effects on vocabulary (Silverman, 2007; evidence rating: 1/5) reported a large effect of teachers’ instruction on how to analyse key elements in a word on oral vocabulary (1.12). Positive albeit slightly less pronounced effects on vocabulary development and narrative skills are attributed to the Talking Time intervention (Dockrell *et al.*, 2010; evidence rating: 3/5), which again takes the language intervention into the school context (largest effect size = 0.68). Apthorp *et al.* (2012) also report large effect sizes for a vocabulary and comprehension intervention—Elements of Reading: Vocabulary—delivered by teachers across two years (0.85; evidence rating: 4/5), as does Neuman and Dwyer (2011) for the World of Words programme (study awarded evidence rating of 2/5) with an expressive vocabulary effect size of 0.64.

Another factor to consider is who delivers the intervention, and we see a very high effect of pull out intensive speech and language therapy for children with more serious language learning difficulties (Gallagher and Chiat, 2009; evidence rating: 1/5). Such therapies fit with a tiered model, where children who continue to demonstrate problems despite initial support continue to experience language learning difficulties. It would be useful to compare this very focused intervention with a setting or classroom-level intervention with the same emphasis (expressive and receptive language). The literature is characterised by a number of studies where the intervention is delivered by the parent (so called parent–child interaction or similar), often with younger children of two or three years. The Heidelberg study showed effect sizes of 1.0 or a little under (Buschman, 2009; evidence rating: 2/5). Other versions of this type of approach have presented with more modest effects (0.2: Roberts and Kaiser, 2015; evidence rating: 2/5), nevertheless this type of work reflects practice in many countries and a definitive trial would be extremely helpful. One caveat related to commissioning trials in this area is the need to check the feasibility of the randomisation process. Experience suggests that randomisation may be an issue for many parents and such a study would have to address with care issues about the educational level of the parents and the availability of other parental support activities serving as a ‘treatment as usual’ condition.

At the more modest end of the spectrum there are a number of pre-reading interventions with effect sizes ranging from 0.2–0.3 (Girolametto *et al.*, 2010, evidence rating: 1/5; Justice *et al.*, 2010, evidence rating: 2/5; Lonigan *et al.*, 2013, evidence rating: 3/5; O’Connor *et al.*, 2010, evidence rating: 3/5). This is an important group of studies precisely because they link so closely with the aspirations of the EEF to improve the literacy skills of young children, especially those from more socially disadvantaged backgrounds. One of the key issues here is that language skills and pre-literacy skills

overlap to a considerable degree and to some extent are one and the same thing. On the face of it, it is difficult to make a clear judgement as to which of the included interventions would best serve as the defined treatment intervention, but there is plenty of potential here.

There are thus two specific recommendations:

- There is a need to explore the potential role of interventions involving parents interacting with young children as a means of promoting children's language abilities and ensuring that they are ready for learning when they get to nursery at age two or three. Care needs to be taken to identify parent-child pairs where there is some concern about the interaction AND there is an identified language difficulty. The outcomes for such a study would be improved interaction, vocabulary, and potential early word combinations. The comparison intervention here would most likely be with routine care—from health visitors and other community services.
- There is a need for an efficacy trial of training early years professionals to deliver interventions within the early years setting drawing on the work of Piasta, Dockrell and The Hanen Centre's Learning Language and Loving It. The outcome for such a study should be vocabulary (receptive and expressive), narrative skills, and pre-reading skills. The comparison here should be with routine care in comparable early years settings AND with targeted (indicated) interventions provided by specialist staff such as speech and language therapists.

Summary

We identified 44 intervention studies which focused on language and related skills in the preschool period. These 44 studies were identified by systematic searching of psychological, medical, and educational literature. All the studies were randomised control trials or quasi-experimental, matched study designs, and, as our application of the evidence rating demonstrates, constitute a relatively robust level of evidence, restricted, to some extent, in the more clinical studies by small sample size. The interventions are designed to take place in educational and community contexts and, while they are often designed by specialists, they often are delivered by non-specialists such as parents, early years practitioners, and teaching assistants—in short, in the context in which children learn language, flagged up so clearly in the literature underpinning the development of language in Chapter 1. Thus, language interventions are partly about what is specifically taught but critically include the way that these messages are generalised to the home or the class.

It is important that the nature of the intervention varies considerably—training parent-child interaction, facilitating dialogic book-reading, scaffolding classroom interactions, fostering narrative skills, or teaching vocabulary. Many of such interventions appear to have a positive effect and, as it stands, no one intervention appears to have a monopoly on effects, although it would be true to say that the training of staff is key to the implementation of effective interventions. It is not that everyone should stop doing whatever they are doing and shift to an alternative approach, but the evidence does suggest that the precision of intervention and measuring the most relevant outcomes is important. It is important to see these interventions as feeding into the development of early literacy. This is not their only function, of course, because improving oral language skills is an end in itself, but this is an important consideration in the early years setting.

That said, we have identified a series of studies which have had positive results in terms of their facilitating the development of language skills. There is a great range of effect sizes and it is clear that there is a need to test whether the very positive results of some of the smaller studies, especially when they are delivered by specifically trained professionals such as speech and language therapists, can be repeated in larger community samples, delivered by staff who have been trained to use the intervention, for example teaching assistants or classroom teachers—so called secondary studies (primary studies being those carried out by the individuals who developed the intervention in the first

place). One might assume that effects would reduce in such circumstances but we cannot say this for sure.

Ways forward

The current evidence base suffers from a number of limitations. The studies did not provide sufficient detail to establish whether long term gains were evident for the successful interventions. Nor was it possible from the data to identify which programme worked best for which children at different points in development. These are more nuanced questions than whether an intervention does or does not produce a given result—the primary outcome of the types of intervention studies described here. We need to know more about how the theories of changes (often underspecified in the interventions) predict changes for different children and whether those changes would be the same irrespective of where the intervention is delivered. Very few of these studies have been replicated and we simply do not know how transferable these results would be. It would be helpful to unpick which of the elements in a given intervention are ‘active’ ingredients—which are key to the process. This is key to defining ‘complex’ interventions of the type described here but much of this work still needs to be done. And finally, although the evidence above suggests that these interventions are discrete, many children receive a variety of different interventions and we need to be able to explore ways of evaluating the effects of combinations of interventions, looking at evidence in terms of the child’s experiences of a pathway through services rather than the single intervention.

Chapter 5: Mapping current provision

Chapter Summary

Rather than writing about every local authority in England, we identified five case sites, characterised as two inner city areas and three rural or suburban areas. We then collected data about each site and its provision for children with SLCN, irrespective of from where those services were provided (health, education, or private sectors).

The five sites represent SLCN provision that is at various stages of development but all five are adopting a systematic approach to delivering *integrated provision* to achieve *shared outcomes*. The approach draws on the expertise of the specialist workforce from both health and education, together with systematic support and development for the wider children's workforce as well as meaningful engagement with families and young people.

We supplemented this information with summaries of the 'local offer' for our five sites plus some others as comparators. The amount of information that is available for parents and professionals varies considerably in its specificity. Speech Language and Communication Needs is a real focus in some authorities whereas in others it scarcely gets a mention.

Alongside key demographic information, five strands of activity are captured, namely Family Support, Enhancing Environments, Developing Workforce, Early Identification, and Effective Intervention, and within each of these across the three levels of universal, targeted and specialist support.

When examining the differences between services it is important to distinguish between the needs of children based on their profiles, the continuum of interventions provided, and the skills and competences of the workforce in the whole system—and to recognise that the relationship between these is not linear. The most effective support system in a local area will allow flexibility for personalisation whereby an individual can access interventions from across the continuum, delivered by the most appropriate practitioner to achieve the identified outcome.

Introduction

The purpose of this chapter is to map service delivery in five different local authorities (LAs) in England, and understand how this relates to the evidence presented in earlier chapters. This chapter takes a case study approach to describing practice in the local authorities. The aim is to provide an indication of the range of current practices, and the prevalence of interventions identified in Chapter 4 in practice.

Three areas were identified as worthy of attention:

- joint commissioning;
- the need to consider the *continuum of need* from the need for all children and young people to develop speech, language, and communication (SLC) skills to those that have specific speech, language and communication needs (SLCN); and
- the *continuum of provision* across universal, targeted and specialist levels.

All the above were considered to be important in fully understanding the response of a local area.

The engagement in joint commissioning was felt to be relevant as the SEND reforms (DfE, 2014) emphasise the duty of health, local authority, and social care bodies to come together to commission integrated provisions for children and young people and their families. The continuum of provision across universal, targeted, and specialist levels has been well established as a useful way of thinking about provision. ‘Universal provision’ includes provision that is available for all children and young people in an area. ‘Targeted provision’ consists of programmes and practices that are focused either in terms of a specific sub-group who will benefit, or defined in terms of the delivery—often by members of the wider workforce in settings and schools who have received training from specialists. ‘Specialist interventions’ are defined either in terms of addressing needs that are low incidence and complex or because of the intrinsic features of the intervention and techniques.

The need to consider both the development of speech, language, and communication skills in all children, and more intensive support for those with particular SLC needs, is particularly pertinent when focusing on areas of social disadvantage. There is evidence that in areas of greatest disadvantage, a higher proportion of children start school with SLC skills below the levels expected for their age than those from less disadvantaged areas. In terms of provision in early years settings and schools, this means that interventions that might be described as ‘targeted’ in an overall taxonomy of interventions and therefore aimed at specific groups of children, may actually be required universally in order to achieve the same outcomes in a local area.

The five areas were selected because they were known to the researcher to have qualitative data available within their local area about jointly commissioned and delivered provisions to support the development of SLC skills in general, as well as support for children and young people who struggle to develop those skills and are described as having ‘speech, language and communication needs’ (SLCN). This data was available across three levels of universal, targeted, and specialist levels of support.

The areas represent a range of size, geography, and rurality, as well as different levels of co-operation between health, education, and social care structures. They also meet the criteria for this report by being among the most disadvantaged areas in England. All of the chosen sites fall within the most disadvantaged 40% of all LA areas in England based on the 2015 releases of the Indices of Multiple Deprivation (IMD) and the Income Deprivation Affecting Children Index (IDACI).¹⁰

¹⁰ ONS, 2015: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015>

Methodology

The researchers used the Balanced System® Mapping Tool to map provision in the local authorities.¹¹ This tool maps provision in five strands: Family Support, Enhancing Environments, Developing Workforce, Early Identification, and Effective Intervention, and within each of these five strands, across the three levels of universal, targeted, and specialist support.

The five strands of the Balanced System® are outcome areas that, taken together, describe the context for children and young people.

- **Family support** encompasses the activities that facilitate families to be informed and supported as communication partners for their children in the early years and to have confidence in securing appropriate additional support where needed.
- The **environment** strand reflects the importance of the places where children and young people spend time (whether home or early years settings, nursery or school) being audited, enhanced, and if necessary adapted to support good speech, language, and communication. This could be at a universal level in terms of how the environment is physically organised through to specific enhancements for children and young people with more particular needs, such as visual timetables.
- The **workforce** strand emphasises the importance of a range of workforce competences through the system from good basic knowledge around SLC and SLCN through to specialist knowledge and also of the mechanisms for training and knowledge transfer.
- **Identification** covers the approach to identifying children and young people's needs.
- **Intervention** refers to the actual programmes and practices that are available in a given area.

For each local authority, information was collected from several sources:

- Contextual information for each local area was collated from national datasets. This included analysis of the organisational structures relevant to the commissioning and provision of support for both SLC development and SLCN, the level of disadvantage, basic demographic information and attainment data from the EYFSP.
- Three measures of disadvantage were collected for each case study: ranks on the Index of Multiple Deprivation (IMD, 2015), the Income Deprivation Affecting Children Index (IDACI) average score, and the IDACI rank of proportion of Lower Super Output Areas (LSOAs) in the 10% most disadvantaged nationally. This last measure captures the data relating to disadvantage at the level of small geographical areas of not more than 3,000 people and not more than 1,200 households. The rank of the number of LSOAs that fall in the 10% most disadvantaged therefore allows an understanding of the range of disadvantage in a given area and for 'pockets' of greater disadvantage to be recognised.
- Qualitative data previously obtained through the use of the Balanced System® Mapping Tool was reviewed and follow-up phone interviews were conducted with local practitioners and managers of services in order to ensure input from a range of perspectives. Interviews were conducted with the speech and language therapy services, local authority early years leads, and where possible representatives of children's centres and early years facilities. Additional information gathered from interviews was added to the existing mapping tool tables. The primary contact in each local area was asked to review the mapping information for accuracy.

¹¹ www.thebalancedsystem.org

- The Local Offer for each site was reviewed online with specific searches for reference to speech, language and communication needs.

Limitations of the methodology include the 'opt-in' nature of the mapping tool. It cannot be said to be exhaustive: it reflects what has been reported but there was no investigation within the remit of this piece of work to triangulate for omissions. The mapping tool also includes examples of practices that could be expected to be part of core 'good practice' in all early years settings and schools. These have been included where they were specifically reported as they do form part of the overall support for children and young people.

Findings

This chapter set out to provide a qualitative map of the programmes and practices supporting speech, language and communication as reported in five case study areas. These areas reflect a range of geographical areas across England but all are in the lowest two quintiles for disadvantage based on nationally recognised measures. The detailed findings from this work are presented in Appendix D.

The brief was for descriptive rather than evaluative presentation of the data and therefore all programmes and practices reported have been included with external references where possible but no comment has been made as to their relative merits. Equally, the absence of a reported programme or practice does not mean it is not available in that area, only that it was not reported by local providers.

We are, however, able to make a number of over-arching observations. It is notable that there are relatively few examples of interventions identified in Chapter 4 being delivered in the case study sites. Of the programmes and practices identified in Chapter 4, the following appear to be delivered in the case study sites:

- parent–child interaction interventions focused on language development—albeit with no clear way of identifying the exact methodology;
- parent–child interaction interventions focused on fluency (stammering) such as Palin PCI and the Lidcombe programmes; and
- Talkboost—specifically mentioned in three of the case studies; the two that do not report using this programme describe practices within the SLT service that are similar to the Talkboost approach: perhaps unsurprising as Talkboost is a programme developed to synthesise the best practice in early language group-targeted interventions that many speech and language therapy services have provided for many years.

The search criteria for interventions used in Chapter 4 did not specifically include programmes and practices relating to autistic spectrum disorder or social use of language. Yet published programmes are included in the mapping tool in all five case studies that are specifically addressing these needs. The high number of provisions relating to autistic spectrum disorder is worthy of note. The Better Communication Research Programme included a study specifically exploring the levels of provision available for children and young people identified with ASD as compared with other SLC needs (Dockrell *et al.*, 2012). It may be that the mapping provision from the five case study sites is capturing a similar result.

Other programmes and practices that were cited by more than one case study area that were not identified by the literature search include Every Child a Talker and ELKLAN. Every Child a Talker, the initiative to support settings borne out of the Better Communication Action Plan in 2008, is mentioned by several sites, either because a form of the ECAT programme is still offered, or to draw attention to its usefulness despite having been discontinued due to the termination of the funding. A brief desktop search indicates that a number of areas nationally have continued to provide ECAT (such as

Worcestershire and Southampton); an example of a programme that was evidenced and demonstrated impact at the time of roll out.

Implications of the case study data include the reality that provision and practice accessed by children and young people appear to be driven by local decisions regarding the approaches, programmes, or practices that will be employed, not through a systematic approach of interrogating the literature before designing and delivering services. The What Works database¹² has been successful in being accessible to practitioners and has the potential to increase the active engagement of practitioners (and commissioners) in interrogating the evidence base before choosing the programmes and practices to be offered. An interesting extension to this analysis would be to explore the correlation between the programmes and practices reported in the case study sites with inclusion in the What Works database.

¹² <http://www.thecommunicationtrust.org.uk/whatworks>

Chapter 6: Conclusions and recommendations

Here we bring together the conclusions and recommendations from the earlier chapters.

Typical language development (Chapter 2)

Chapter 2 highlighted evidence showing that at all levels of communicative development in the preschool years (0–5), the right environmental support has the potential to make a real difference to children's language learning, and, consequently, to their later academic success. However, ensuring that all children benefit from rich environmental support requires a coherent approach.

- First, *cost-effective, evidence-based training* and interventions that promote the most effective types of language-boosting interactions between children and those caring for them (parents and early years practitioners) are needed to ensure that all children have the best possible chance of reaching their full potential. As Chapter 4 highlighted, a variety of language-boosting environments in early years settings can work to mitigate problems in a child's home environment.
- Second, *effective monitoring* of children's progress at different stages of communicative development is needed to catch those children falling behind quickly, whatever their stage of development. As the review indicates, it is currently difficult to identify children who will have persistent language difficulties, yet these are the children who require targeted, specialist support. Developing sensitive and effective monitoring tools will require investment in research as we currently do not know enough about the precise relations between different aspects of communicative development. Moreover, developing the right measurement tools for communication is complex because what we need to measure changes constantly throughout the preschool years.
- Third, simply providing training to encourage parents and practitioners to use language-boosting strategies on its own does not necessarily mean those strategies are put into practice resulting in gains for children. The broad theoretical approach in which this review is framed is based on the assumption that socially meaningful interactions support early communicative development. However, as should be clear, the nature of these supportive interactions will need to change to suit the child's current level of development: what works to engage a baby in joint attention over an object to facilitate word learning may be very different from an optimal approach to encouraging the use of complex sentences, or developing phonological awareness and print knowledge. For this reason, developing effective training, monitoring, and evaluation requires a *close link with the theoretical framework informing current research*.

Models of identification (Chapter 3)

In Chapter 3, we used the median prevalence across studies to provide our best estimate of the prevalence of preschool children falling significantly behind their peers in their language development. This estimate was a prevalence of 7% to 14%, varying slightly with age. Our work on the prevalence data identified the need for a continuum of response to a continuum of need. Rather than splitting the preschool population into those with language difficulties and those without at an arbitrary threshold score, there is a need to develop and evaluate models of services wherein the *continuum of risk* is acknowledged and there is a corresponding *continuum of response* in terms of the amount and type of intervention offered. This would address the issue of children moving 'just above' an arbitrary threshold and becoming ineligible for support when in reality their language abilities remain low in

comparison to their peers. It would also extend access to support to those with milder difficulties which, longitudinal studies suggest, place children at risk (Beitchman *et al.*, 2001: lowest 16%; Tomblin, 2008: lowest 10%).

In such service models, an element of over-provision would be inevitable, but the success or failure of this more gradient approach would need to be judged with respect to its ability to prevent later difficulties for a significant proportion of children at risk in a given population rather than its accurate 'diagnosis' of individual children with language difficulties. The more lenient approach to establishing a level of language ability below which to offer support may be more costly since potentially a significant number of children who do not need services may receive them. However, currently we do not know if this is the case and robust evaluation studies incorporating cost and benefit analyses are required.

Currently there is no reliable method to estimate a child's level of risk. However, there are some emerging approaches which show promise but which require further development and testing.

Integrating child, family, and parenting factors to estimate a child's level of risk

- Most screening instruments focus only on the child and not on the wider social determinants of language difficulties. Recent studies have demonstrated that supplementing such tools with *additional information about family and parenting factors* could increase their predictive validity (Hudson, Levickis, Down, Nicholls and Wake, 2015; Levickis and McKean, 2014; McKean *et al.*, 2016).

Identifying children with multiple vulnerabilities

- Children who experience language difficulties in *association with other vulnerabilities* may be particularly at risk of poor outcomes. For example, children with both *language and speech difficulties* are particularly vulnerable to later literacy difficulties (Hayiou-Thomas, Carroll, Leavett, Hulme and Snowling, 2016; Pennington and Bishop, 2009). These can be difficulties with decoding or reading comprehension. Phonological awareness is also a key predictor of a child's literacy progress. Developing and evaluating methods to estimate a child's level of risk through the integration of information regarding their oral language, current or previous speech difficulties, and phonological awareness—perhaps drawing on the Phonics Screening Check—should be explored (although see Law *et al.*, 2013 for concerns about the interpretation of the Phonics Screening Check).
- A child's *social and emotional development* may also be indicative of the need for additional support. In clinical samples, it is clear that children presenting to specialist services with social-emotional and mental health difficulties are at very high risk of having language difficulties, and vice versa. The strength and pattern of these associations appear to vary as children develop (Bretherton *et al.*, 2014; Lindsay and Dockrell, 2012). However, in the preschool years there appear to be bidirectional relationships between children's language and social-emotional and mental health development (Girard, Pingault, Doyle, Falissard and Tremblay, 2015): that difficulties in one exacerbate difficulties in the other. There are also some early indications that children with language difficulties and associated social-emotional difficulties may experience a worsening language profile over time (McKean *et al.*, in preparation). The effectiveness of approaches which target children's vulnerabilities in both language and social-emotional and mental health development should be explored.

Monitoring the child's rate of language progress over time

- Due to the degree of variability in children's language development in the preschool years, and the high levels of both the resolution and emergence of difficulties over that period, it

would appear that accurate early identification of children in need of additional support cannot be a single event. Rather, it is necessary to monitor a child's progress over time. This approach has a number of advantages. First, the *reliability* of estimates of a child's abilities is significantly increased if findings from multiple assessment tools are integrated (Bornstein *et al.*, 2016). Second, this approach would form a *safety net* within which to catch children who are missed at earlier assessment points. It might also allow the *nature of change over time* to be captured. Recent studies suggest that the severity and persistence of language difficulties and the rate of progress of a child's early language development may be indicative of their longer-term outcomes (Määttä, Laakso, Tolvanen, Westerholm and Aro, 2016; Snowling, Duff, Nash and Hulme, 2015; Zambrana *et al.*, 2014).

- This 'surveillance' of children's development is already completed as part of the Healthy Child Programme. The recent adoption nationally of the Ages and Stages questionnaire (Squires *et al.*, 2009)—a robust tool for monitoring children's developmental progress—is a welcome first step to developing methods for targeting support for children's language development. However, studies are required to evaluate the performance of this measure as a tool for targeting support for children with language difficulties.

A priority for future research, therefore, is to evaluate methods to determine children's level of risk of persisting language difficulties through the integration of child, family and parenting factors together with evaluation of a child developmental pathway. Interventions which provide gradient responses to these gradient levels of risk would also need to be developed and evaluated with careful consideration of the cost and burden to families and services.

Effective approaches and interventions (Chapter 4)

In Chapter 4 we identified 44 intervention studies which focused on language and related skills in the preschool period. These studies were identified by systematic searching of psychological, medical, and educational literature. All were randomised control trials or quasi-experimental, matched study designs and, as our application of the evidence rating demonstrates, constitute a relatively robust level of evidence, restricted, to some extent, in the more clinical studies by small sample size. The interventions are designed to take place in educational and community contexts, and while they are often designed by specialists, they often are delivered by non-specialists such as parents, early years practitioners, and teaching assistants—in short, in the contexts in which children learn language flagged up so clearly in the literature underpinning the development of language in Chapter 1. Thus, language interventions are partly about what is specifically taught, but critically include the way that these messages are generalised to the home or the class.

It is important that the nature of the intervention is multifaceted—including, for example, training parent-child interaction, facilitating dialogic book-reading, scaffolding classroom interactions, fostering narrative skills, or teaching vocabulary. Many such interventions appear to have a positive effect and, as it stands, no one approach appears to have a monopoly on effects, although it would be true to say that the training of staff is key to the implementation of effective interventions. It is not that everyone should stop doing whatever they are doing and shift to an alternative approach, but the evidence does suggest that the precision of intervention, and measuring the most relevant outcomes, is important. It is important to see these interventions as feeding into the development of early literacy. This is not their only function, of course, because improving oral language skills is an end in itself, but this is an important consideration in the early years setting.

That said, we have identified a series of studies identifying interventions which have had positive results in terms of facilitating the development of language skills. There is a great range of effect sizes and it is clear that there is a need to test whether the very positive results reported by some of the smaller studies, especially when they are delivered by specifically trained professionals such as

speech and language therapists, can be repeated in the context of larger community settings delivered by staff who have been trained to use the intervention—for example teaching assistants or classroom teachers (so called secondary studies—primary studies being those carried out by the individuals who developed the intervention in the first place). One might assume that effects would reduce in such circumstances but we cannot say this for sure.

The current evidence base suffers from a number of limitations. The studies did not provide sufficient detail to establish whether long term gains were evident for the successful interventions. Nor was it possible from the data to specify which programme worked best for which children at different points in development. These are more nuanced questions than whether an intervention does, or does not, produce a given result—the primary outcome of the types of intervention studies described here. We need to know more about how the theories of changes (often underspecified in the interventions) predict changes for different children, and whether those changes would be the same irrespective of where the intervention is delivered. Very few of these studies have been replicated and we simply do not know how transferable these results would be. It would be helpful to unpick which of the elements in a given intervention are ‘active’ ingredients that are key to the process. This is key to defining ‘complex’ interventions of the type described here, but much of this work still needs to be done. And finally, although the evidence above suggests that these interventions are discrete, many children receive a variety of different interventions and we need to be able to explore ways of evaluating the effects of combinations of interventions, looking at evidence in terms of the child’s experiences of a pathway through services rather than the single intervention.

In terms of specific recommendations for promising interventions which need to be explored at scale in a U.K. context, we identified two specific recommendations where interventions have been shown to be effective in small, more constrained efficacy trials but have yet to be examined as effectiveness trials. These are:

1. There is a need to explore the potential role of parent–child interaction interventions with young children as a means of promoting children’s language abilities and ensuring that children are ready for learning when they get to nursery at age two or three. Care needs to be taken to identify parent–child pairs where there is some concern about the interaction AND there is an identified language difficulty. The outcomes for such a study would be improved interaction, vocabulary, and potential early word combinations. The comparison intervention here would most likely be with routine care—from health visitors and other community services.
2. There is a need for an efficacy trial of training early years practitioners (professional development) to deliver interventions within the early years setting, drawing on the work of Piasta, Dockrell and The Hanen Centre’s Learning Language and Loving It. The outcome for such a study should be vocabulary (receptive and expressive), narrative skills, and pre-reading skills. The comparison here should be with routine care in comparable early years settings AND with targeted (indicated) interventions provided by specialist staff such as speech and language therapists.

Developing best practice in service delivery (Chapter 5)

From Chapter 5 it is clear that capturing a snapshot of the key ingredients of service delivery is complex and requires careful analysis. To date, this approach has been developed in response to the needs of specific authorities but there is clearly a case for such a ‘systems’ approach—balancing needs assessment and evidence-based provision—to be evaluated as a whole, going beyond the experimental model and drawing on sophisticated management experience. Although language can be a feature of such evaluations, they will need to be integrated into many other aspects of services for children. If such a model can be tested in a robust fashion it would then be possible to make direct

comparisons between services and the way that they manage specific aspects of service delivery. A priority for future research is to evaluate the efficacy and cost effectiveness of 'pathways' of support which integrate methods for targeting through estimating a child's level of risk of persisting difficulties of the type articulated in Chapter 3 with a profile of interventions which provide graded responses to different levels of those risks.

References

- Aguado-Orea, J. and Pine, J. M. (2015) 'Comparing different models of the development of verb inflection in early child Spanish', *PLoS ONE*, 10 (3).
- Aksu-Koç, A. and Slobin, D. I. (1985) 'The acquisition of Turkish', *The Crosslinguistic Study of Language Acquisition, Vol. 1: The Data; Vol. 2: Theoretical Issues*, Hillsdale, NJ: Erlbaum.
- All Party Parliamentary Group on Speech and Language Difficulties (2013) *The links between speech, language and communication needs and social disadvantage*, London: Royal College of Speech and Language Therapists.
- Allen, G. and Duncan Smith, I. (2008) *Early Intervention: Good parents, Great Kids, Better Citizens*. London: The Centre for Social Justice and the Smith Institute.
- Ambridge, B., Kidd, E., Rowland, C. and Theakston, A. (2015) 'The ubiquity of frequency effects in first language', *Journal of Child Language*, 42 (2), pp. 239–73.
- Arriaga, R., Fensen, L., Cronan, T. and Pethick, S. (1998) 'Scores on the MacArthur Communicative Development Inventory of children from low- and middle-income families', *Applied Psycholinguistics*, 19, pp. 209–23.
- Basit, T. N., Hughes, A., Iqbal, Z. and Cooper, J. (2015) 'The influence of socio-economic status and ethnicity on speech and language development', *International Journal of Early Years Education*, 23 (1), pp. 115–33.
- Bates, E. (1976). *Language and context: Studies in the acquisition of pragmatics*. New York, NY: Academic Press.
- Bates, E., Bretherton, I. and Snyder, L. (1988) *From first words to grammar: Individual differences and dissociable mechanisms*, New York: Cambridge University Press.
- Beitchman, J. H., Wilson, B., Johnson, C. J., Atkinson, L., Young, A., Adlaf, E., . . . Douglas, L. (2001) 'Fourteen-year follow-up of speech/language-impaired and control children: Psychiatric outcome', *Journal of the American Academy of Child and Adolescent Psychiatry*, 40 (1), pp. 75–82.
- Bercow, J. (2008) *The Bercow report: A review of services for children and young people (0–19) with speech, language and communication needs*: <https://www.education.gov.uk/publications/eOrderingDownload/Bercow-Report.pdf>
- Bergelson, E. and Swingle, D. (2012) 'At 6–9 months, human infants know the meanings of many common nouns', *Proceedings of the National Academy of Sciences*, 109 (9), pp. 3,253–58.
- Department for Children, Schools and Families (Department of Health) (2008) *Better Communication: An action plan to improve services for children and young people with speech, language and communication needs*.
- Bishop, D. V. M., Holt, G., Line, E., McDonald, D., McDonald, S. and Watt, H. (2012) 'Parental phonological memory contributes to prediction of outcome of late talkers from 20 months to 4 years: A longitudinal study of precursors of specific language impairment', *Journal of Neuro-Developmental Disorders*, 4, 3.
- Bishop, D. V., Snowling, M., Thompson, P. A., Greenhalgh, P. and CATALISE-2 consortium (2016) 'CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development. Phase 2. Terminology', *PeerJ Preprints* (4), e2484v2481.

- Bishop, D. V. M., Snowling, M., Thompson, P. A., Greenhalgh, T. and CATALISE consortium (2016) 'CATALISE: A Multinational and Multidisciplinary Delphi Consensus Study. Identifying Language Impairments in Children', *PLOS one*.
- Bornstein, M. H., Hahn, C. S. and Putnick, D. L. (2016) 'Long-term stability of core language skill in children with contrasting language skills', *Developmental Psychology*, 52 (5), pp. 704–16.
- Boundy, L., Cameron-Faulkner, T. and Theakston, A. (2016) 'Behavioural determinants of infants' early communicative gestures', *Infant Behavior and Development*, 44, pp. 86–97.
- Bowerman, M. (1988) 'The "no negative evidence" problem: How do children avoid constructing an overly general grammar?', in J. A. Hawkins (ed.), *Explaining language universals*, Oxford: Blackwell (pp. 73–101).
- Bretherton, L., Prior, M., Bavin, E., Cini, E., Eadie, P. and Reilly, S. (2014) 'Developing relationships between language and behaviour in preschool children from the Early Language in Victoria Study: implications for intervention', *Emotional and Behavioural Difficulties*, 19 (1), pp. 7–27.
- Brown, R. (1973) *A First Language*, Cambridge, MA: Harvard University Press.
- Callaghan, T., Moll, H., Rakoczy, H., Warneken, F., Liszkowski, U., Behne, T. and Tomasello, M. (2011) 'Early social cognition in three cultural contexts', *Monographs of the Society for Research in Child Development*, 76 (2), pp. vii–viii, 1–142.
- Cameron-Faulkner, T., Lieven, E. and Tomasello, M. (2003) 'A construction based analysis of child directed speech', *Cognitive Science*, 27 (6), pp. 843–873.
- Cameron-Faulkner, T., Theakston, A., Lieven, E. and Tomasello, M. (2015) 'The relationship between infant holdout and gives, and pointing', *Infancy*, 20 (5), pp. 576–586.
- Cartmill, E. A., Armstrong III, B. F., Gleitman, L. R., Goldin-Meadow, S., Medina, T. N. and Trueswell, J. C. (2013) 'Quality of early parent input predicts child vocabulary 3 years later', *PNAS*, 110 (28), pp. 1,1278–83.
- The Centre for Social Justice, 'Requires Improvement: The causes of educational failure', London: The Centre for Social Justice, 2013.
- The Centre for Social Justice, 'Closing the divide: tackling educational inequality in England', London: The Centre for Social Justice, 2014.
- Christensen, D., Zubrick, S. R., Lawrence, D., Mitrou, F. and Taylor, C. L. (2014) 'Risk factors for low receptive vocabulary abilities in the preschool and early school years in the longitudinal study of Australian children', *PLoS ONE*, 9 (7).
- Cleave, P. L., Becker, S. D., Curran, M. K., Van Horne, A. J. O. and Fey, M. E. (2015) 'The Efficacy of Recasts in Language Intervention: A Systematic Review and Meta-Analysis', *American Journal of Speech and Language Pathology*, 24 (2), pp. 237–255.
- Colonnaesi, C., Stams, G. J. J. M., Koster, I. and Nboom, M. J. (2010) 'The relation between pointing and language development: A meta-analysis', *Developmental Review*, 30 (4), pp. 352–66: <http://doi.org/10.1016/j.dr.2010.10.001>
- Dale, P. S., Price, T. S., Bishop, D. V. and Plomin, R. (2003) 'Outcomes of early language delay: Part I. Predicting persistent and transient language difficulties at 3 and 4 years', *Journal of Speech, Language, and Hearing Research*, 46, pp. 544–60.
- Demir, Ö. E., Rowe, M., Heller, G., Levine, S. C. and Goldin-Meadow, S. (2015) 'Vocabulary, syntax and narrative development in children with and without early unilateral brain injury: Early

- parental talk about the there-and-then matters', *Developmental Psychology*, 51 (2), pp. 161–175.
- Department for Education (2013). *Early years outcomes A non-statutory guide for practitioners and inspectors to help inform understanding of child development through the early years*, London: DfE.
- de Villiers, J. (2007) 'The interface of language and theory of mind', *Lingua*, 117, pp. 1,858–78.
- Dickinson, D., McCabe, P. C., Anastasopoulos, L., Peisner-Feinberg, E. S. and Poe, M.D. (2003) 'The comprehensive language approach to early literacy: The interrelationships among vocabulary, phonological sensitivity, and print knowledge among preschool-aged children', *Journal of Educational Psychology*, 95, pp. 465–81.
- Diessel, H. (2004) *The acquisition of complex sentences*, Cambridge: Cambridge University Press.
- Dockrell, J., Lindsay, G., Roulstone, S. and Law, J. (2014) 'Supporting children with speech language and communication needs: an overview of the results of the Better Communication Research Programme', *International Journal of Language and Communication Disorders*
DOI/10.1111/1460-6984.12089
- Duff, F. J., Reen, G., Plunkett, K. and Nation, K. (2015) 'Do infant vocabulary skills predict school-age language and literacy outcomes?', *Journal of Child Psychology and Psychiatry*, 56 (8), pp. 848–56.
- Ellis Weismer, S. (2007) 'Typical talkers, late talkers, and children with specific language impairment: A language endowment spectrum', in R. Paul (ed.), *The influence of developmental perspectives on research and practice in communication disorders: A festschrift for Robin S. Chapman* (pp. 83–102), Mahwah, NJ: Erlbaum.
- Engel de Abreu, P. M. J., Abreu, N., Nikaedo, C. C., Puglisi, M. L., Tourinho, C. J., Miranda, M. C., ... Martin, R. (2014) 'Executive functioning and reading achievement in school: a study of Brazilian children assessed by their teachers as "poor readers"', *Frontiers in Psychology*, 5, p. 550.
- Every Child Ready to Read Literature review* (2010), retrieved from:
<http://www.everychildreadytoread.org/project-history%09/literature-review-2010>
- Fasolo, M., Majorano, M. and D'Odorico, L. (2008) 'Babbling and first words in children with slow expressive development', *Clinical Linguistics and Phonetics*, 22 (2), pp. 83–94.
- Fernald, A. and Marchman, V. A. (2012). Individual differences in lexical processing at 18 months predict vocabulary growth in typically-developing and late-talking toddlers. *Child Development*, 83, 203–222.
- Fernald, A., Marchman, V. A. and Weisleder, A. (2013) 'SES differences in language processing skill and vocabulary are evident at 18 months', *Developmental Science*, 16 (2), pp. 234–48.
- Franklin, B., Warlaumont, A. S., Messinger, D., Bene, E., Nathani Iyer, S., Lee, C.-C., ... Oller, D. K. (2013) 'Effects of parental interaction on infant vocalization rate, variability and vocal type', *Language Learning and Development*, 10 (3), pp. 279–296.
- Fricke, S., Bowyer-Crane, C., Haley, A. J., Hulme, C. and Snowling, M. J. (2013) 'Efficacy of language intervention in the early years', *Journal of Child Psychology and Psychiatry*, 54, pp. 280–90.
- Ghassabian, A., Rescorla, L., Henrichs, J., Jaddoe, V. W., Verhulst, F. C. and Tiemeier, H. (2013) 'Early lexical development and risk of verbal and nonverbal cognitive delay at school age', *Acta Paediatrica*, 103, pp. 70–80.

- Ghassabian, A., Rescorla, L., Henrichs, J., Jaddoe, V. W., Verhulst, F. C., and Tiemeier, H. (2014) 'Early lexical development and risk of verbal and nonverbal cognitive delay at school age', *Acta Paediatrica, International Journal of Paediatrics*, 103 (1), pp. 70–80.
- Girard, L. C., Pingault, J. B., Doyle, O., Falissard, B. and Tremblay, R. E. (2015) 'Developmental Associations Between Conduct Problems and Expressive Language in Early Childhood: A Population-Based Study', *Journal of Abnormal Child Psychology*.
- Goldstein, M. H., King, A. P. and West, M. J. (2003) 'Social interaction shapes babbling: testing parallels between birdsong and speech', *PNAS*, 100 (13), pp. 8,030–35.
- Gough, P. B. and Tunmer, W. (1986) 'Decoding, reading and reading disability', *Remedial and Special Education*, 7, pp. 6–10.
- Gross, J. (2011) 'Two Years On: final report of the Communication Champion for children', London: Office of the Communication Champion.
- Harper, L. J. (2011) 'Nursery rhyme knowledge and phonological awareness in preschool children', *The Journal of Language and Literacy Education*, 7 (1), pp. 65-78.
- Harrison, L. J. and McLeod, S. (2010) 'Risk and protective factors associated with speech and language impairment in a nationally representative sample of 4- to 5-year-old children', *Journal of Speech, Language, and Hearing Research*, 53 (2), pp. 508–29.
- Hart, B. and Risley, T. R. (1995) *Meaningful differences in the everyday experiences of young American children*, Baltimore: Brookes Publishing Co.
- Hayiou-Thomas, M. E., Carroll, J. M., Leavett, R., Hulme, C. and Snowling, M. J. (2016) 'When does speech sound disorder matter for literacy? The role of disordered speech errors, co-occurring language impairment and family risk of dyslexia', *Journal of Child Psychology and Psychiatry*, 58 (2), pp. 197–205.
- Hendry, A., Jones, E. and Charman, T. (2016) 'Executive function in the first three years of life: Precursors, predictors and patterns', *Developmental Review*, 42, pp. 1–33.
- Henrichs, J., Rescorla, L., Schenk, J. J., Schmidt, H. G., Jadooe, V. W. V., Hofman, A., Raat, H., Verhulst, F. and Tiemeier, H. (2011) 'Examining continuity of early expressive vocabulary development: The Generation R study', *Journal of Speech, Language, and Hearing Research*, 54, pp. 854–69.
- Hipfner-Boucher, K., Milburn, T., Weitzman, E., Greenberg, J., Pelletier, J. and Girolametto, L. (2014) 'Relationships between preschoolers' oral language and phonological awareness', *First Language*, 34, pp. 178-97.
- Hoff, E. (2003) 'The specificity of environmental influence: socioeconomic status affects early vocabulary development via maternal speech', *Child Development*, 74, pp. 1,368–78.
- Hsu, H. C., Fogel, A. and Messinger, D. S. (2001) 'Infant non-distress vocalization during mother-infant face-to-face interaction: Factors associated with quantitative and qualitative differences', *Infant Behavior and Development*, 24 (1), pp. 107–28
- Hudson, S., Levickis, P., Down, K., Nicholls, R. and Wake, M. (2015) 'Maternal responsiveness predicts child language at ages 3 and 4 in a community-based sample of slow-to-talk toddlers', *International Journal of Language and Communication Disorders*, 50 (1), pp. 136–42.
- Huttenlocher, J., Vasilyeva, M., Cymerman, E. and Levine, S. (2002) 'Language Input and Child Syntax', *Cognitive Psychology*, 45 (3), pp. 337–74.

- Justice, L. M. and Ezell, H. K. (2002) 'Use of storybook reading to increase print awareness in at-risk children', *American Journal of Speech-Language Pathology*, 11, pp. 17–29.
- Justice, L. M., Weber, S., Ezell, H. K. and Bakeman, R. (2002) 'A sequential analysis of children's responsiveness to parental references to print during shared storybook reading', *American Journal of Speech-Language Pathology*, 11, pp. 30–40.
- Kidd, E. (2013) 'The role of verbal working memory in children's sentence comprehension: A critical review', *Topics in Language Disorders*, 33, pp. 208–23.
- Kidd, E. and Arciuli, J. (2016) 'Individual differences in statistical learning predict children's comprehension of syntax', *Child Development*, 87 (1), pp. 184–93.
- Kirjavainen, M., Theakston, A. and Lieven, E. (2009) 'Can input explain children's me-for-I errors?', *Journal of Child Language*, 36 (5), pp. 1,091–114.
- Klee, T., Carson, D. K., Gavin, W. J., Hall, L., Kent, A. and Reece, S. (1998) 'Concurrent and predictive validity of an early language screening programme', *Journal of Speech, Language, and Hearing Research*, 41, pp. 627–41.
- Law, J., Boyle, J., Harris, F., Harkness, A. and Nye, C. (2000) 'Prevalence and natural history of primary speech and language delay: Findings from a systematic review of the literature', *International Journal of Language and Communication Disorders*, 35 (2), pp. 165–88.
- Law, J., Gascoigne, M. and Garrett, Z. (2003) 'Review of the speech and language therapy service in City and Hackney Primary Care Trust', available from the first author: School of Education, Communication and Language Sciences, University of Newcastle, Newcastle-upon-Tyne, NE1 7RU; e: James.Law@ncl.ac.uk
- Law, J., Lindsay, G., Peacey, N., Gascoigne, M., Soloff, N., Radford, J. and Band, S. (2000) 'Provision For Children With Speech And Language Needs In England And Wales: Facilitating communication between education and health services', London: DfEE/DoH.
- Law, J., McBean, K. and Rush, R. (2011) 'Communication skills in a population of primary school-aged children raised in an area of pronounced social disadvantage', *International Journal of Language and Communication Disorders*, 46 (6), pp. 657–64.
- Law, J., Roulstone, S., Lee, W., Wren, Y., Zeng, B. and Lindsay, G. (2012) *What works: Interventions for children with speech language and communication needs*, Nottingham: DfE.
- Law, J. and Roy, P. (2008) 'Parental report of infant language skills – a review of the development and application of the Communicative Development Inventories', *Child and Adolescent Mental Health*, 13, pp. 198–206.
- Law, J., Rush, R., Anandan, C., Cox, M. and Wood, R. (2012) 'Predicting language change between 3 and 5 Years and its implications for early identification', *Pediatrics*, 130 (1), pp. 132–37.
- Law, J., Rush, R., Schoon, I. and Parsons, S. (2009) 'Modeling developmental language difficulties from school entry into adulthood: Literacy, mental health, and employment outcomes', *Journal of Speech Language and Hearing Research*, 52 (6), pp. 1,401–16.
- Law, J., Todd, L., Clark, J., Mroz, M. and Carr, J. (2013) *Early language delays in the UK*, London: Save the Children.
- Lerner, M. and Lonigan, C. (2016) 'Bidirectional relations between phonological awareness and letter knowledge in preschool revisited: A growth curve analysis of the relation between two code-related skills', *Journal of Experimental Child Psychology*, 144, pp. 166–83.

- Levickis, P. and McKean, C. (2014) 'Late talking: does parenting behaviour hold the key?', *Research Snapshots*, 4, Melbourne: Centre for Research Excellence in Child Language.
- Lieven, E. V. M., Pine, J. M. and Baldwin, G. (1997) 'Lexically-based learning and early grammatical development', *Journal of Child Language*, 24, pp. 187–219.
- Lindsay, G. and Dockrell, J. E. (2012) 'Longitudinal patterns of behavioral, emotional, and social difficulties and self-concepts in adolescents with a history of specific language impairment', *Language, Speech, and Hearing Services in Schools*, 43 (4), pp. 445–60.
- Lindsay G., Desforges M., Dockrell J., Law J., Peacey N. and Beecham J. (2008) *The effective and efficient use of resources in services for children and young people with speech, language and communication needs*, Monograph, Nottingham: DCFS.
- Liszkowski, U., Brown, P., Callaghan, T., Takada, A. and de Vos, C. (2012) 'A prelinguistic gestural universal of human communication', *Cognitive Science*, 36, pp. 698–713.
- Locke, A., Ginsborg, J. and Peers, I. (2002) 'Development and disadvantage: Implications for the early years and beyond', *International Journal of Language and Communication Disorders*, 37 (1), pp. 3-15.
- Lonigan, C. J. (2007) 'Vocabulary development and the development of phonological awareness skills in preschool children', in R. K. Wagner, A. E. Muse, and K. R. Tannenbaum (eds), *Vocabulary acquisition, implications for reading comprehension*, New York: Guilford Press (pp. 15–31).
- Lonigan, C. J., Burgess, S. R. and Anthony, J. L. (2000) 'Development of emergent literacy and early reading skills in preschool children: Evidence from a latent-variable longitudinal study', *Developmental Psychology*, 36, pp. 596–613.
- Lonigan, C. J., Anthony, J. L., Phillips, B. M., Purpura, D. J., Wilson, S. B. and McQueen, J. D. (2009) 'The nature of preschool phonological processing abilities and their relations to vocabulary, general cognitive abilities, and print knowledge', *Journal of Educational Psychology*, 101, pp. 345–58.
- Määttä, S., Laakso, M. L., Tolvanen, T. A. A., Westerholm, J. and Aro, T. (2016) 'Continuity From Prelinguistic Communication to Later Language Ability: A Follow-Up Study From Infancy to Early School Age', *Journal of Speech Language and Hearing Research*, 59, pp. 1,357–72.
- Marcus, G. F., Pinker, S., Ullman, M., Hollander, M., Rosen, T. J. and Xu, F. (1992) 'Over-regularization in language acquisition', *Monographs of the Society for Research in Child Development*, 57 (4), pp. 1–182.
- Marmot, M., Atkinson, A., Bell, J., Black, C., Broadfoot, P., Cumberlege, J., . . . Mulgan, G. (2010) 'Fair Society Healthy Lives: The Marmot review Executive Summary', London: UCL.
- Marulis, L. M. and Neuman, S. B. (2013) 'How Vocabulary Interventions Affect Young Children at Risk: A Meta-Analytic Review', *Journal of Research on Educational Effectiveness*, 6 (3), pp. 223–62.
- Matthews, D., Lieven, E., Theakston, A. and Tomasello, M. (2006) 'The effect of perceptual availability and prior discourse on young children's use of referring expressions', *Applied Psycholinguistics*, 27 (03), pp. 403–22.
- McGillion, M. L., Herbert, J. S., Pine, J. M., Keren-Portnoy, T., Vihman, M. M. and Matthews, D. E. (2013) 'Supporting early vocabulary development: What sort of responsiveness matters?', *IEEE Transactions on Autonomous Mental Development*, 5 (3), pp. 240–48.

- McGillion, M. L., Herbert, J. S., Pine, J., Vihman, M. M., dePaolis, R., Keren-Portnoy, T. and Matthews, D. (2016) 'What paves the way to conventional language? The predictive value of babble, pointing and SES', *Child Development*, 88 (1), pp. 156–66.
- McKean, C., Law, J., Mensah, F., Cini, E., Eadie, P., Frazer, K. and Reilly, S. (2016) 'Predicting meaningful differences in school-entry language skills from child and family factors measured at 12 months of age', *International Journal of Early Childhood*, 48 (3), pp. 329–51.
- McKean, C., Mensah, F. K., Eadie, P., Bavin, E. L., Bretherton, L., Cini, E. and Reilly, S. (2015) 'Levers for language growth: Characteristics and predictors of language trajectories between 4 and 7 years', *PLoS ONE*, 10 (8).
- McKean C., Reilly S., Bavin E., Bretherton L., Cini E., Conway L., Cook F., Eadie P., Prior M., Wake M. Mensah F. (2017) 'Language outcomes at 7 years: early predictors and co-occurring difficulties', *Pediatrics*, **139** (3), e20161684.
- McKean, C., Wraith, D., Eadie, P., Cook, F., Mensah, F. and Reilly, S. (in press) 'Subgroups in language trajectory from 4 to 11 years: the nature and predictors of stable, improving and declining language trajectory groups', *Journal of Child Psychology and Psychiatry, Special Edition*.
- Mol, S. E. and Bus, A. G. (2011) 'To Read or Not to Read: A Meta-Analysis of Print Exposure From Infancy to Early Adulthood', *Psychological Bulletin*, 137 (2), pp. 267–96.
- Morgan, P. L., Hammer, C. S., Farkas, G., Hillemeier, M. M., Maczuga, S., Cook, M. and Morano, S. (2016) 'Who receives speech/language pathology services by 5 years of age in the United States?', *American Journal of Speech-Language Pathology*, 25, pp. 183–99.
- Muter, V., Hulme, C., Snowling, M. J. and Stevenson, J. (2004) 'Phonemes, rimes and language skills as foundations of early reading development: Evidence from a longitudinal study', *Developmental Psychology*, 40, pp. 665–81.
- Naigles, L. R. and Hoff-Ginsberg, E. (1998) 'Why are some verbs learned before other verbs? Effects of input frequency and structure on children's early verb use', *Journal of Child Language*, 25, pp. 95-120.
- Namy, L. L., Acredolo, L. and Goodwyn, S. (2000) 'Verbal labels and gestural routines in parental communication with young children', *Journal of Nonverbal Behavior*, 24 (2), pp. 63–79.
- Neumann, M. M. (2016) 'Using environmental print to foster emergent literacy in children from a low-SES community', *Early Childhood Research Quarterly*, 29, pp. 310–318.
- Neumann, M. M., Hood, M. and Ford, R. (2013) 'Using environmental print to enhance emergent literacy and print motivation', *Reading and Writing: An Interdisciplinary Journal*, 26, pp. 771–93.
- Norbury, C. F. (2015) 'Editorial: Early intervention in response to language delays – is there a danger of putting too many eggs in the wrong basket?', *Journal of Child Psychology and Psychiatry*, 56, pp. 835–36.
- Norbury, C. F., Gooch, G., Wray, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G. and Pickles, A. (2016) 'The impact of nonverbal ability on prevalence and clinical presentation of language disorder: evidence from a population study', *Journal of Child Psychology and Psychiatry*, 1,247–57. DOI: 10.1111/jcpp.12573
- Paul, R. and Roth, F. P. (2011) 'Characterizing and predicting outcomes of communication delays in infants and toddlers: Implications for clinical practice', *Language, Speech, and Hearing Services in Schools*, 42, pp. 331–40.

- Pennington, B. F. and Bishop, D. V. M. (2009) 'Relations among speech, language and reading disorders', *Annual Review of Psychology*, 60, pp. 283–306.
- Pine, J. M. (2015) 'My mistake', *Nursery World*: <http://www.lucid.ac.uk/resources/for-practitioners/nursery-world-magazine/>
- Purpura, D., Schmitt, S. and Ganley, C. (2017) 'Foundations of mathematics and literacy: The role of executive functioning components', *Journal of Experimental Child Psychology*, 153, pp. 15–34.
- Räsänen, S. H. M., Ambridge, B. and Pine, J. M. (2013) 'Infinitives or bare stems? Are English-speaking children defaulting to the highest-frequency form?', *Journal of Child Language*, 1–24.
- Reilly, S., McKean, C. and Levickis, P. (2014) 'Late talking: can it predict later language difficulties?' *Research Snapshot*.
- Reilly, S., Tomblin, B., Law, J., McKean, C., Mensah, F. K., Morgan, A., . . . Wake, M. (2014) 'Specific language impairment: A convenient label for whom?', *International Journal of Language and Communication Disorders*, 49 (4), pp. 416–51.
- Reilly, S., Wake, M., Bavin, E. L., Prior, M., Williams, J., Bretherton, L., . . . Ukoumunne, O. C. (2007) 'Predicting language at 2 years of age: A prospective community study', *Pediatrics*, 120 (6), pp. e1441–49.
- Reilly, S., Wake, M., Ukoumunne, O. C., Bavin, E., Prior, M., Cini, E., . . . Bretherton, L. (2010) 'Predicting language outcomes at 4 years of age: Findings from the Early Language in Victoria Study', *Pediatrics*, 126 (6), pp. e1530–37.
- Rescorla, L. (2011) 'Late talkers: Do good predictors of outcome exist?', *Developmental Disabilities Research Reviews*, 17, pp. 141–50.
- Rice, M. L., Taylor, C. L. and Zubrick, S. R. (2008) 'Language outcomes of 7-year-old children with or without a history of late language emergence at 24 months', *Journal of Speech, Language, and Hearing Research*, 51 (2), pp. 394–407.
- Ricketts, J., Nation, K. and Bishop, D. V. M. (2007) 'Vocabulary is important for some, but not all reading skills', *Scientific Studies of Reading*, 11, pp. 235–57
- Rispoli, M. (1994) 'Pronoun case overextensions and paradigm building', *Journal of Child Language*, 21 (1), pp. 157–72.
- Roberts, M. and Kaiser, A. (2011) 'The Effectiveness of Parent-Implemented Language Intervention: A Meta-Analysis', *American Journal of Speech-Language Pathology*, 20, pp. 180–99.
- Rosenbaum, S. and Simon, P. (eds) (2016) 'Speech and Language Disorders in Children: Implications for the Social Security Administration's Supplemental Security Income Program', National Academies of Sciences, Engineering, and Medicine, Washington, DC: The National Academies Press, DOI: 10.17226/21872.
- Roy, P. and Chiat, S. (2012) 'Teasing apart disadvantage from disorder: The case of poor language', in *Current Issues in Developmental Disorders*, Taylor and Francis (pp. 125–50).
- Rowe, M. L. (2012) 'A Longitudinal Investigation of the role of quantity and quality of child-directed speech in vocabulary development', *Child Development*, 83 (5), pp. 1,762–74.
- Rowland, C. F. (2007) 'Explaining errors in children's questions', *Cognition*, 104 (1), pp. 106–34.
- Rudolph, J. M. and Leonard, L. B. (2016) 'Early language milestones and specific language impairment'.

- Ryan, A., Gibbon, F. E. and Oshea, A. (2016) 'Expressive and receptive language skills in preschool children from a socially disadvantaged area', *International Journal of Speech-Language Pathology*, 18 (1), pp. 41-52.
- Salomo, D. and Liszkowski, U. (2013) 'Sociocultural settings influence the emergence of prelinguistic deictic gestures', *Child Development*, 84, pp. 1,296–307.
- Save the Children (2013a) *Too young to fail Giving all children a fair start in life*, London: Save the Children.
- Save the Children Fund (2015) *Ready to read: Closing the gap in early language skills so that every child in England can read well*, London: Save the Children Fund.
- Save the Children Fund (2012) *Thrive at five: Comparative child development at school-entry*, London: Save the Children Fund.
- Save the Children Fund (2014) *Read On. Get On. How reading can help children escape poverty*, London: Save the Children Fund.
- Senate Community Affairs References Committee (2014) *Prevalence of different types of speech, language and communication disorders and speech pathology services in Australia*, Canberra: Commonwealth of Australia, ISBN 978-1-76010-081-0.
- Skeat, J., Eadie, P., Ukoumunne, O. and Reilly, S. (2010) 'Predictors of parents seeking help or advice about children's communication development in the early years', *Child: Care, Health and Development*, 36 (6), pp. 878–87.
- Smith, A. C., Monaghan, P. and Huettig, F. (2014) 'Literacy effects on language and vision: Emergent effects from an amodal shared resource (ASR) computational model', *Cognitive Psychology*, 75, pp. 28-54.
- Siu, A. L. (2015) 'Screening for speech and language delay in children 5 years old and younger: US preventive services task force recommendation statement', *Pediatrics*, 136 (2), e474–81.
- Skeat, J., Wake, M., Ukoumunne, O. C., Eadie, P., Bretherton, L. and Reilly, S. (2014) 'Who gets help for preschool communication problems? Data from a prospective community study', *Child: Care, Health and Development*, 40 (2), pp. 215–22.
- Snowling, M. J., Duff, F. J., Nash, H. M. and Hulme, C. (2015) 'Language profiles and literacy outcomes of children with resolving, emerging, or persisting language impairments' [Epub], *Journal of Child Psychology and Psychiatry*.
- Squires, J., et al. (2009) *ASQ-3 User's Guide*, 3rd edn, Baltimore: Brookes.
- Storch, S. A., and Whitehurst, G. J. (2002) 'Oral language and code-related precursors to reading: Evidence from a longitudinal structural model', *Developmental Psychology*, 38, pp. 934–47.
- Taumeoepau, M. (2016) 'Maternal expansions of child language relate to growth in children's vocabulary', *Language Learning and Development*, 12 (4), pp. 429–46.
- Taylor, J. S. H., Duff, F. J., Woollams, A. M., Monaghan, P. and Ricketts, J. (2015) 'How word meaning influences word reading', *Current Directions in Psychological Science*, 24 (4), pp. 322–28.
- Thal, D. J., Marchman, V. A., and Tomblin, J. B. (2013) 'Late-talking toddlers: Characterization and prediction of continued delay', in L. A. Rescorla and P. S. Dale (eds), *Late talkers: Language development, interventions, and outcomes*, Baltimore, MD: Brookes (pp. 169–201).

- Theakston, A. L. (2012) “‘The spotty cow tickled the pig with a curly tail’: how do sentence position and referential complexity affect children’s and adults’ choice of referring expression?”, *Applied Psycholinguistics*, 33 (4), pp. 691–724.
- Theakston, A. L. (2015) ‘A formal occasion’, *Nursery World*: <http://www.lucid.ac.uk/resources/for-practitioners/nursery-world-magazine/>
- Theakston, A., Ibbotson, P., Freudenthal, D., Lieven, E. and Tomasello, M. (2015) ‘Productivity of noun slots in verb frames’, *Cognitive Science*, 39 (6), pp. 1,369–95.
- Tomblin, B. (2008) ‘Validating diagnostic standards for specific language impairment using adolescent outcomes’, in C. F. Norbury, B. Tomblin and D. V. M. Bishop (eds), *Understanding developmental language disorders: from theory to practice*, Hove: Psychology Press.
- Tomblin, J. B., Zhang, X., Buckwalter, P. and O’Brien, M. (2003) ‘The stability of primary language disorder: Four years after kindergarten diagnosis’, *Journal of Speech Language and Hearing Research*, 46 (6), pp. 1,283–96.
- Tomasello, M. (2003) *Constructing a Language: A Usage-Based Theory of Language Acquisition*, Harvard University Press.
- Tomasello, M. and Farrar, M. (1986) ‘Joint attention and early language’, *Child Development*, 57, pp. 1,454–63.
- Vihman, M. (1996) *Phonological development: The origins of language in the child*, Oxford: Basil Blackwell.
- Wagner, R. K., Torgesen, J. K., Rashotte, C. A., Hecht, S. A., Barker, T. A., Burgess, S. R., ... Garon, T. (1997) ‘Changing relations between phonological processing abilities and word-level reading as children develop from beginning to skilled readers: A 5-year longitudinal study’, *Developmental Psychology*, 33, pp. 468–79.
- Welsch, J., Sullivan, A. and Justice, L. (2003) ‘That’s my letter!: what preschoolers’ name writing representations tell us about emergent literacy knowledge’, *Journal of Literacy Research*, 35, pp. 757–76.
- Whitehouse, A. J. O., Robinson, M. and Zubrick, S. R. (2011) ‘Late talking and the risk for psychosocial problems during childhood and adolescence’, *Pediatrics*, 128 (2), pp. e324–32.
- Whitehurst, G. and Lonigan, C. (1998) ‘Child development and emergent literacy’, *Child Development*, 69, pp. 848–72.
- Zambrana, I. M., Pons, F., Eadie, P. and Ystrom, E. (2014) ‘Trajectories of language delay from age 3 to 5: Persistence, recovery and late onset’, *International Journal of Language and Communication Disorders*, 49, pp. 304–16.
- Zubrick, S. R., Taylor, C. L. and Christensen, D. (2015) ‘Patterns and predictors of language and literacy abilities 4–10 years in the longitudinal study of Australian children’, *PLoS ONE*, 10 (9).
- Zubrick, S. R., Taylor, C. L., Rice, M. L. and Slegers, D. W. (2007) ‘Late language emergence at 24 months: An epidemiological study of prevalence, predictors, and covariates’, *Journal of Speech, Language, and Hearing Research*, 50 (6), pp. 1,562–92.

Appendix A: Included interventions (by first author)

1	Apthorp	17	Koutsoftas	33	Roberts ii
2	Assel	18	Landry	34	Ruston
3	Buschmann	19	Lee	35	Silverman
4	Cabell	20	Lonigan	36	Spencer
5	De Konning	21	Marley	37	Spycher
6	Dockrell	22	McKean	38	Tsybina
7	Gallagher	23	Motsch	39	Tyler
8	Garcia	24	Neuman	40	Vadasy
9	Gibbard	25	Nicolopoulou	41	Van Kleeck
10	Girolametto i	26	O'Connor	42	Wake i
11	Girolametto ii	27	Ouellette	43	Wake ii
12	Glogowska	28	Peterson	44	Washington
13	Hadley	29	Piasta		
14	Justice i	30	Pollard-Durodola		
15	Justice ii	31	Restrepo		
16	Justice iii	32	Roberts i		

Appendix B: Summary tables of included interventions

Note: in the following tables, the age-range, focus, target, and type applicable to each intervention is indicated in **bold** type.

Name of intervention	Security of the findings				
Elements of Reading: V (Beck and McKeown, 2004). ¹³	1	2	3	4	5
<p>Description of aims and objectives</p> <p>Elements of Reading: Vocabulary (EORV) is intended for teachers' daily classroom use across consecutive grades—Kindergarten to Grade 5. The EOR programme has had widespread use. Recent studies have focused on establishing the average effect of EORV on vocabulary and passage comprehension in schools serving children from low-income households.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>				
<p>Delivery</p> <p>Procedures: EORV involves teacher training using PowerPoint and video and teachers submitting their own weekly reading lesson plans. Depending on Grade, 6–8 Tier 2 words are introduced per lesson using the EORV programme. Lessons follow a three-phase structure: introduce the vocabulary, use the vocabulary, and assess the vocabulary. On Day 1, teachers introduce words with both contextual and definitional information through the use of read-alouds, student-friendly explanation, and photo cards with dramatic images to help children visualize and personalize each word. On Days 2, 3, and 4 of the lesson, teachers guide students through the use of words using different activities that prompt the children to think about, and apply, their knowledge of the new words to everyday situations and episodes. It is these teacher-guided 'bringing words to life' activities that provide children multiple exposures and opportunities to use words. On Day 5, teachers guide students in a vocabulary review and assessment; the teacher provides cumulative review opportunities in subsequent lessons.</p> <p>Modes of delivery: the EORV programme is delivered face-to-face by early years practitioners to a whole class over the course of the year.</p> <p>Materials: training involves the EORV training kit which includes PowerPoint and video-clips. Teachers complete a five-day lesson plan implementing the programme using a Teacher Guide and Classroom Kit.</p> <p>Location: the teacher training element of the programme takes</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>				

¹³ In Appendix B the interventions are organised alphabetically by first author. The name of the intervention itself is given at the top of the summary. In some cases this is made explicit by the authors, such as 'Talking Time' or 'Lets begin with the letter people', but in other cases the authors do not name the intervention and we have included a notional title such as 'Language intervention following screening'.

<p>place in the practitioner's school, delivered by a researcher. EORV then takes place in the classroom.</p> <p>Frequency/dosage: the programme implements 24 lessons per grade. Delivery is 10–20 minutes per day, five days per week.</p>	
<p>Level of evidence</p> <p>Programme fidelity: 45% of early years practitioners delivered the appropriate amount of EORV lessons; the average was 15 lessons out of 24. EORV practitioners, on average, demonstrated high levels of procedural fidelity, implementing 85% to 91% of the intended activities.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: kindergarten intervention group: teachers, n = 96; control group, n = 101 teachers.</p> <p>Measurement: prior achievement: Tests of Instructed Word Knowledge in vocabulary (TOIW-V) and comprehension (TOIW-C).</p> <p>Analysis: three-level hierarchical linear model analyses where students were nested within classrooms and classrooms nested within schools.</p> <p>Attrition: the overall data attrition ranged from 18% to 23%.</p> <p>Baseline comparison: comparison of treatment and control groups at baseline on student achievement, controlling for nesting of students within schools, revealed no statistically significant difference on SAT-10 at baseline.</p> <p>Outcome: oral recognition of words: $d = 0.85$; use of vocabulary in listening comprehension, $d = 0.21$.</p>	<p>Target</p> <p>Universal</p> <p>Selected Targeted</p> <p>Indicated Targeted</p>
<p>References</p> <p>Apthorp, H., Randel, B., Cherasaro, T., Clark, T., McKeown, M. and Beck, I. (2012) 'Effects of a Supplemental Vocabulary Programme on Word Knowledge and Passage Comprehension', <i>Journal of Research on Educational Effectiveness</i>, 5 (2), pp. 160–88.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Let's Begin with the Letter People and Doors to Discovery.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on kindergarteners.</p> <p>Evaluation of two language and literacy curricula occurring within Head Start, Title 1, and universal pre-kindergarten versus a control group and including mentoring and non-mentoring.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: Let's Begin involves practitioner training over a four-day workshop. Training occurs within small groups and includes instruction and experience in all content areas. The training model highlighted aspects of the two target curricula that are important for supporting language and literacy development, as well as responsive teaching practices that encouraged strong social/emotional skills. Let's Begin curriculum focuses on letter knowledge. It has 26 thematic units organised into daily lessons. Early years practitioners focus on letters, phonological awareness, integrated vocabulary, and developmental areas such as oral language, listening, alphabet, and story knowledge. Letter knowledge activities were encouraged through the use of the Letter People 'Huggables' and storybooks. The Let's Begin curriculum is structured to expose children to increasing levels of phonological sophistication. During the first portion of the pre-K year, phonological activities focus on listening, rhyming, and word play. However, by the mid-point of the year, children are being exposed to alliteration activities, and by the end of the year, practitioners begin to concentrate on syllabication activities. Doors to Discovery includes focus on early literacy, vocabulary, expressive and receptive language. Early years practitioners use specific open-ended statements and questions to promote discussion. Doors to Discovery was designed in ways to encourage children's literacy development across five areas: oral language, phonological awareness, concepts of print, alphabet knowledge, writing, and comprehension.</p> <p>Modes of delivery: practitioners delivered the intervention face-to-face in their whole group classes over the course of the academic year.</p> <p>Materials: 'Huggables' and storybooks, practitioner guides.</p> <p>Location: the programmes take place in the classroom.</p> <p>Frequency/dosage: early years practitioners devote one unit of curriculum each week over 26 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: mentors for each curriculum completed Curriculum Fidelity Checklists three times over the course of the</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p>										

<p>year. In general, early years practitioners were implementing key components of each curriculum at high levels.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: N = 603 (unclear how many in each curriculum arm).</p> <p>Measurement: Preschool Language Scale (4th edition)—auditory comprehension subscale; Expressive Vocabulary Test (EVT); Developing Skills Checklist (DSC), Woodcock–Johnson III Tests of Achievement (WJ-3).</p> <p>Analysis: multilevel growth curve analysis.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: comparing early years practitioner qualifications, practitioners within the public school settings (Title 1 and universal pre-K) had more education, were predominantly Caucasian, and had more certifications than early years practitioners in Head Start. No baseline comparison for child language.</p> <p>Outcome: language comprehension. Treatment better than control, $d = 0.18$, particularly for Head Star $d = .86$, but mentored Door to Discovery or non-mentored Let’s Begin showed slower growth than control in Title 1.</p> <p>Vocabulary: both interventions better in Head Start ($d = 0.68$) and Title 1 ($d = 0.04$) than in Universal ($d = -0.52$). Effect of mentoring versus non-mentoring moderated by Site, Head Start with targeted curriculum ($d = 0.74$) compared to Title 1 ($d = 0.42$) and universal ($d = 0.08$). For Title 1, Doors to Discovery irrespective of mentoring ($d = 0.01$); Let’s Begin, if mentored, $d = 0.36$.</p> <p>PA: treatment better than control, $d = 0.26$, both interventions better in Head Start, $d = 0.48$ and Title 1 programmes, $d = 0.34$ than control in universal, $d = 0.04$. Let’s Begin out-performed Doors to Discovery, $d = 0.24$.</p>	<p>Indicated—targeted</p>
<p>References</p> <p>Assel, M. A., Landry, S. H., Swank, P. R. and Gunnewig, S. (2007) ‘An evaluation of curriculum, setting, and mentoring on the performance of children enrolled in pre-kindergarten’, <i>Reading and Writing</i>, 20 (5), pp. 463–94.</p>	<p>Type Programme Practice</p>

<p>Name of intervention</p> <p>Heidelberg Parent-based Language Intervention (HPLI).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Evaluate the effectiveness of a short, highly-structured parent-based language intervention group programme for 2-year-old children with specific expressive language delay (SELD, without deficits in receptive language).</p>	<p>Age range</p> <p>0–2 (2–3 years) 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: HPLI is a highly structured and interactive programme developed for use with a group of 5–10 parents. Parents are introduced to child oriented interaction-promoting and language-modelling techniques. Sharing picture books is one of the main topics of the programme. The intervention started when the children were about 25 months old.</p> <p>Modes of delivery: sessions with mothers were conducted by the first author who had developed the HPLI.</p> <p>Materials: picture books.</p> <p>Location: all sessions took place at the Children’s Hospital, University of Heidelberg.</p> <p>Frequency/dosage: the 3-month programme consisted of seven 2-hour sessions, and one 3-hour session 6 months later.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 58 children; intervention group children, n = 24; control group, n = 23. To achieve comparability, only mothers took part; about seven mothers took part in each group.</p> <p>Measurement: ELFRA-2 (the German version of the MacArthur Communicative Development Inventories), developmental language test for 2-year-old children (SETK-2), Mental Scale of the Bayley Scales of Infant Development.</p> <p>Analysis: ANOVA.</p> <p>Attrition: unclear</p> <p>Baseline comparison: the intervention and waiting groups did not differ significantly on any of the demographic data (Table 1) or on any language score (Table 2).</p> <p>Outcome: significant main effect for group on word production ($p = 0.006$, $d = 0.74$) and sentence production ($p = 0.001$, $d = 1.0$). At the age of 3 years, 75% of the children in the intervention group showed normal expressive language abilities in contrast to 44% in the waiting group.</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>References</p> <p>Buschmann, A., Jooss, B., Rupp, A., Feldhusen, F., Pietz, J., Philippi, H. (2009) 'Parent based language intervention for 2-year-old children with specific expressive language delay: a randomised controlled trial', <i>Archives of Disease in Childhood</i>, 94 (2):pp. 110–16.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Language intervention following screening.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>To assess the screening performance of a specific language-screening instrument at 18 and 24 months and assess its effect on the early detection and prognosis of language delay. A second paper assesses the effects of screening and early treatment of preschool children for language delay on language development and school performance at age 8.</p>	<p>Age range</p> <p>0–2 (–36 months)</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: child healthcare physicians were randomised to the intervention group in which specific language screening was conducted twice using the VTO LSI (at age 18 months and 24 months), or to the control group (usual care). The specific screening instrument consisted of a structured interview for parents with questions about language production, language comprehension and interaction. Each language element examined is awarded a score of 0 or 1 (the maximum score at 15 months is four; the maximum score at 24 months is three). The final score is calculated by summing up the scores of both screens (range 0–7). If the final score is two or less, the language-screening test is positive and the child is referred.</p> <p>Modes of delivery: a health care physician carries out the screening.</p> <p>Materials: VTO LSI.</p> <p>Location: unclear.</p> <p>Frequency/dosage: the interview takes about five minutes and is administered twice: when the child is 15–18 months old and at 24 months.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: the correlation coefficient of the VTO LSI score with the Reynell language comprehension test was 0.48.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention group, n = 5,734; control, n = 4,621.</p> <p>Measurement: the primary outcome measure was the frequency of diagnosed language delay before 36 months Parent questionnaire-Parent Language Checklist (PLC), 17 the LSI for age 3–4 years, the LSI Parent Questionnaire (PQ) and Van Wiechen items. Follow-up data from Speech and Hearing Clinics and written overviews of children.</p> <p>Analysis: Chi-Square test and logistic regression.</p> <p>Attrition: not available.</p> <p>Baseline comparison: not available.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Outcome: by age 3, in the intervention group, 2% of the children were being treated, or had been treated for language problems, compared with 1.5% of children in the control group ($p \leq 0.05$). In the fully screened intervention group, this was 2.1%, an increase of 40% compared to the control group ($p \leq 0.05$). According to the LSI Parent Questionnaire (language checklist)—after correcting for age, sex, mother’s/father’s educational level, outcome of hearing screening, birth order, and region—only LSI reference point 24 resulted in a significant difference between groups ($p = 0.019$). Before age 3, 3.5% of the children in the intervention group and 2.4% in the control group had been treated to spur language development ($P = 0.069$). Before age 5, the percentage of children who were ever treated was significantly higher in the intervention group than in the control group: 10.8% vs 8.6% ($P = 0.024$).</p>	
<p>References</p> <p>de Koning, H. J., de Ridder-Sluiters, J. G., van Agt, H. M., Reep-van den Bergh, C. M., van der Stege, H. A., Korfage, I. J., Polder, J. J., van der Maas, P. J. (2004) ‘A cluster-randomised trial of screening for language disorders in toddlers’, <i>Journal of Medical Screening</i>, 11 (3), pp. 109–16.</p> <p>van Agt, H. M., van der Stege, H. A., de Ridder-Sluiters, H., Verhoeven, L. T., de Koning, H. J. (2007) ‘A cluster-randomised trial of screening for language delay in toddlers: effects on school performance and language development at age 8’, <i>Pediatrics</i>, 120 (6), pp. 1,317–25.</p>	<p>Type</p> <p>Programme Practice</p>

<p>Name of intervention</p> <p>Learning Language and Loving It (Weitzman and Greenberg, 2002).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on low SES kindergarteners in suburban and rural communities.</p> <p>Effect of early years practitioner responsiveness education on children's expressive language: grammar (use of morphology, pronouns, tense, and prepositions) and receptive language (ability to comprehend complex sentence structures) receptive and expressive vocabulary and literacy (print-concept knowledge and alphabet knowledge).</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: professional development programme in the intervention has 2 components: direct training to increase conversational responsiveness in the classroom, and access to a consultant who provided off-site coaching throughout the year. The programme has 8 sessions each focused on engaging children in conversation and providing enriching opportunities to stimulate their language. Strategies include responsiveness (such as taking turns with children in conversations and asking questions), training materials (video-demonstrations, PowerPoint slides, role-play etc.).</p> <p>Modes of delivery: the professional development programmes are delivered by researchers or SLPs. Early years practitioners deliver the intervention face-to-face to their whole group classes.</p> <p>Materials: early years practitioners are given the Learning Language and Loving It manual (Weitzman and Greenberg, 2002) along with in-depth training on the first five sessions: (a) Take a Closer Look at Communication, (b) Follow the Child's Lead, (c) Taking Turns Together, (d) Encouraging Interactions in Group Situations, and (e) Provide Information That Promotes Language Learning. Early years practitioners also receive a schedule of reading assignments to take place over the year, video-recording equipment, recording media, and training on how to use this equipment.</p> <p>Location: professional development takes place in an intervention centre, then the teachers deliver to their class in school.</p> <p>Frequency/dosage: professional development is a 3-day workshop, intervention delivered once a week for 8 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: overall, intervention early years practitioners employed communication facilitating responsiveness strategies (maximum score = 5) at a greater rate across the year than those in control centres.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention n = 25 early years practitioners, and 174 children; control n = 24 early years practitioners, and 156 children.</p> <p>Measurement: CELF Preschool–2, Preschool Print and Word Awareness test, Upper-Case Alphabet Knowledge and the Lower-Case Alphabet Knowledge tasks of the Phonological Awareness Literacy Screening for Preschool.</p> <p>Analysis: three-level hierarchical linear modelling</p> <p>Attrition: 21 children left their preschool programme during the school year, leaving 309 children remaining as study participants in the spring of the year. There was occasional missing data on one or several measures for individual children. The primary reasons for missing data included child absence on the day of assessment or child dissent. Sample sizes varied per assessment outcome</p> <p>Baseline comparison: groups were comparable on age, mothers' education, and language ability, but the intervention group included more Black/African American and Hispanic children and fewer Caucasian children than expected by chance.</p> <p>Outcome: intervention effects not apparent for any language outcome (but treatment group significantly outperformed control group for expressive vocabulary at 1.5 SD above the mean).</p>	
<p>References</p> <p>Cabell, S. Q., Justice, L. M., Piasta, S. B., Curenton, S. M. <i>et al.</i> (2011) 'The Impact of Teacher Responsivity Education on Preschoolers' Language and Literacy Skills. <i>American Journal of Speech Language Pathology</i>, 20 (4), pp. 315–30.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Talking Time.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on ELL children with poor language skills in typical preschool provision.</p> <p>Effect of Talking time versus Story reading and non-intervention on receptive (verbal comprehension) and expressive (naming vocabulary) language skills development.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the intervention includes three dimensions. First, vocabulary was developed through play-acting around themes that targeted key vocabulary items, including nouns, verbs, and adjectives. Second, the ability to understand and draw inferences was developed through an activity which provided structured discussions around books where the focus was the pictures in the books, what they illustrated, what might be predicted and how they linked to the children’s own experiences. Third, narrative development was supported by using pictures of common activities in the children’s local environment and providing children with the opportunity to describe and discuss these events. Vocabulary development and inference occur in the first term, narrative activities in the second term.</p> <p>Models of delivery: teachers, nursery nurses, and classroom assistants delivered intervention in small groups of four or five children with a range of language levels in each group.</p> <p>Materials: books with pictures, and pictures of common activities in the children’s environment.</p> <p>Location: training is provided at the intervention setting (school) and early years practitioners delivered the intervention in a quiet area of the school.</p> <p>Frequency/dosage: Talking Time was carried out over two terms. Children took part in the activities for 15 minutes twice a week for 15 weeks: each child received a total of 7.5 hours intervention.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: intervention fidelity was evaluated through weekly visits to the centres where information about activity sessions and groups was collected, and ongoing sessions were observed to ensure that the activities were carried out as designed and adult language use matched the intervention criteria.</p> <p>Type of evaluation: quasi-experimental design.</p> <p>Sample: Talking Time intervention, n = 53; Story reading, n = 41; control, n = 48.</p> <p>Measurement: Picture Similarities and Block Building subtests of</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>the Early Years core scales of the BAS II, The Grammar and Phonology Screening Test, BAS II subtests Verbal Comprehension and Naming Vocabulary, Bus Story Test.</p> <p>Analysis: ANCOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: differences between ELL and monolingual children were present at baseline therefore analysis was carried out on ELL children only.</p> <p>Outcome: verbal comprehension Eta squared (η^2) = 0.68. Naming vocabulary η^2 = 0.10. Sentence repetition η^2 = 0.15.</p> <p>Talking Time differed significantly from Story Reading and Non-intervention groups on verbal comprehension (difference estimate = 7.84), naming vocabulary (difference estimate = 7.59) and sentence repetition (difference estimate = 1.73).</p> <p>Intervention was not sufficient to bring language skills of ELL into the typical range for English monolinguals.</p>	
<p>References</p> <p>Dockrell, J. E., Stuart, M. and King, D. (2010) 'Supporting early oral language skills for English language learners in inner city preschool provision', <i>British Journal of Educational Psychology</i>, 80 (4), pp. 497–515.</p>	<p>Type Programme Practice</p>

<p>Name of intervention</p> <p>Intensive Speech and Language Therapy.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>To investigate the effectiveness of 3 different models of therapy provision (Group 1: intensive SLT, Group 2: nursery-based intervention, Group 3: sessions at local clinic) for children with specific language impairment between the ages of 4 and 6 years.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: The therapy techniques used in the treatment phase included modelling, sentence recasting, and elicited imitation. In tasks where modelling techniques were used, the SLT produced models of target utterances which were repeated several times using a variety of visual stimuli. Activities were divided into ‘listening’ and ‘talking’ tasks. In tasks involving the technique of sentence recasting, the SLT produced correct models of utterances that the children had initiated. In elicited imitation, the SLT modelled an utterance related to a visual stimulus and requested that the child repeat the utterance. This technique was used in the group situation, asking children to give instructions to other children or to miniature dolls/puppets in order to reduce the speaking pressure of the technique.</p> <p>Modes of delivery: delivered by an SLT face-to-face with the child.</p> <p>Materials: picture sequences in books, miniature dolls/puppets.</p> <p>Location: child development centre.</p> <p>Frequency/dosage: one weekly session lasting for 4 consecutive hours for a total of 24 weeks. Total therapy hours = 96.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: quasi-experimental (random assignment to 1 of 3 intervention groups).</p> <p>Sample: Group 1, n = 8; Group 2, n = 8; Group 3, n = 8.</p> <p>Measurement: the Reynell Developmental Scales III comprehension subtest, British Picture Vocabulary Scales (BPVS), The Renfrew Action Picture Test (RAPT).</p> <p>Analysis: ANOVA.</p> <p>Attrition: two of the eight children in the Intensive group missed one session, and one child in the Nursery-based group missed two sessions.</p> <p>Baseline comparison: no significant differences were identified between any groups on comprehension of grammar, comprehension of vocabulary, expressive grammar, expressive</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>information, or expressive vocabulary.</p> <p>Outcome: the Intensive group and the Nursery-based group showed significant differences in progress on comprehension of grammar ($p = 0.01$, $d = 1.72$), comprehension of vocabulary ($p = 0.01$, $d = 2.24$), expressive vocabulary ($p = 0.01$, $d = 2.76$) and expressive information ($p = 0.01$, $d = 1.52$).</p> <p>The Intensive group and the No Intervention group showed significant differences in progress on all language measures, including comprehension of grammar ($p = 0.01$), comprehension of vocabulary ($p = 0.01$), expressive grammar ($p = 0.01$), expressive vocabulary ($p = 0.01$), and expressive information ($p = 0.01$). (no effect sizes reported).</p>	
<p>References</p> <p>Gallagher, A. L. and Chiat, S. (2009) 'Evaluation of speech and language therapy interventions for preschool children with specific language impairment: a comparison of outcomes following specialist intensive, nursery-based and no intervention. International', <i>Journal of Language and Communication Disorders</i>, 44 (5), pp. 616–38.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Parent-Child Interaction Therapy (PCIT).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Examined the effect of Parent-Child Interaction Therapy (PCIT)—a parent-training intervention for child behavioural problems—on child language production. Children had elevated levels of externalising behavioural problems and had, or were, at risk of developmental delay.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: PCIT is an evidence-based behavioural parent-training intervention for treatment of disruptive behaviour in young children that incorporates the use of nondirective play to increase positive parent-child interactions. Treatment is divided into two distinct phases: Child-Directed Interaction, and Parent-Directed Interaction. During Child-Directed Interaction, parents are taught to increase their use of ‘PRIDE’ skills and direct them toward appropriate child behaviour and ignore inappropriate child behaviour. During Parent-Directed Interaction, parents learn to use direct commands and consistent consequences for child compliance and noncompliance, initially during play and eventually learning to generalize the skills throughout the day and in other settings. Mothers were videotaped with their child during a 5-minute session of child-directed play at the initial baseline assessment (Time 1), and at a second assessment 4 months later (Time 2) after PCIT. It is unclear how much contact time parents had with PCIT.</p> <p>Modes of delivery: therapists deliver to parents face-to-face.</p> <p>Materials: age appropriate toys (e.g. blocks, farm house).</p> <p>Location: delivered by therapist in clinic.</p> <p>Frequency/dosage: unclear.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 49 children. Intervention (Immediate Treatment, IT), n = 21; waitlist control (WL) n = 26.</p> <p>Measurement: the Dyadic Parent-Child Interaction Coding System (Third Edition), The Child Language Data Exchange System. Child language measures included transcription of number of total words used (‘word tokens’), and the diversity of words used at baseline and 4 months later.</p> <p>Analysis: structural equation modelling.</p> <p>Attrition: 47% drop-out.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Baseline comparison: no statistically significant difference between groups on demographic or language characteristics.</p> <p>Outcomes: maternal 'do skills' (intervention group) at Time 2 was a significant predictor of different words at Time 2 ($p = 0.01$) and total number of words ($p = 0.05$). Group significant predictor of maternal 'do skills' at Time 2 ($p = <0.01$).</p>	
<p>References</p> <p>Garcia, D., Bagner, D. M., Pruden, S. M., Nichols-Lopez, K. (2015) 'Language Production in Children with and At Risk for Delay: Mediating Role of Parenting Skills', <i>Journal of Clinical Child and Adolescent Psychology</i>, 44 (5), pp. 814–25.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Parent Based Intervention (PBI)</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>To compare parent-based intervention (PBI) for preschool children presenting with expressive language delay with current practice observed in an actual healthcare setting where parents of the child follow a professional's advice on a review basis.</p> <p>The main treatment objective for the 6-month intervention was to increase the child's linguistic complexity from single word level to three to four word utterances.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: PBI was delivered as indirect parent-based group treatment that used a combination of the setting of linguistic objectives and an interactional approach. The emphasis of PBI was development of a child's expressive language by using daily routines and naturally occurring situations. Over a series of 11 fortnightly group sessions, language objectives were set for the parents to work on at home with their child. The group sessions explained and clarified each objective to the parent through structured teaching demonstrations for each language objective set. Practice activities were also devised during the sessions to encourage the parents to think about each language objective flexibly.</p> <p>Modes of delivery: delivered by a SLTs in clinic, face-to-face, and by parents at home with the child, face-to-face.</p> <p>Materials: written report by SLTs.</p> <p>Location: parents receive training in clinic then deliver what they have learnt at home with the child.</p> <p>Frequency/dosage: 11 fortnightly parent group sessions lasting 90 minutes.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: quasi-experimental study.</p> <p>Sample: intervention, n = 12; control, n = 10.</p> <p>Measurement: the Reynell Developmental Language Scales, the Preschool Language Scale (version 3), mean length of utterance from recorded and transcribed language sample.</p> <p>Analysis: two-way analysis of covariance.</p> <p>Attrition: one missing post-intervention data.</p> <p>Baseline comparison: there were no statistically-significant differences between groups.</p> <p>Outcome: significant improvement in intervention group compared to controls in estimated vocab (p = 0.005), estimated phrase length (p = 0.000), RDLS (p = 0.003), MLU (p = 0.000), PLS expression (p</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

= 0.003), PLS comprehension (p = 0.020).	
<p>References</p> <p>Gibbard, D., Coglan. L. and MacDonald J. (2004) 'Cost-effectiveness analysis of current practice and parent intervention for children under 3 years presenting with expressive language delay', <i>International Journal of Language and Communication Disorders</i>, 39 (2), pp. 229–44.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>ABC and Beyond</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Examined the efficacy of a professional development programme for early childhood educators that facilitated emergent literacy skills in preschoolers.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: ABC and Beyond, the Hanen Programme for Building Emergent Literacy in Early Childhood Settings, involves four workshops that teach educators how to facilitate literacy skills across the day with all children in their classroom. Core content involved engaging children in decontextualized talk and modeling print concepts, letter names, and sounds in utterances to children during shared reading and post-story writing activities. Additional content that was not examined in the current study included the facilitation of vocabulary, narrative awareness, and shared reading practices. The teaching methods used in all four workshops included (a) review of the previous week’s content, (b) interactive lectures with examples and videos selected to illustrate strategies, (c) small-group discussions to analyse videotaped examples, (d) role plays of strategy implementation, and (e) completion of action plans for strategy implementation in the classroom. Each workshop was followed by an individual classroom visit (for a total of three visits) that focused on helping the educators individualize the workshop content to their classrooms.</p> <p>Modes of delivery: training delivered by a speech-language pathologist.</p> <p>Materials: educators received copies of the programme manual that summarized the content of the workshops and provided multiple examples of strategies.</p> <p>Location: early childhood settings.</p> <p>Frequency/dosage: the experimental group participated in 18 hours of group training and 3 individual coaching sessions with a speech-language pathologist.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: the mean fidelity ratings for the three classroom visits were 14.7, 13.2, and 5.5, respectively. These average ratings indicated a high degree of strategy implementation during activities that were observed and coached by an SLP.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 20 educators: intervention, n = 10; control, n = 10.</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>Intervention children, n = 39; control, n = 37.</p> <p>Measurement: the effects of intervention were examined in 30 minutes of videotaped interaction, including storybook reading and a post-story writing activity.</p> <p>Analysis: coding of videotaped interactions.</p> <p>Attrition: 8 of the 10 educators attended all four workshops.</p> <p>Baseline comparison: Groups were comparable at baseline.</p> <p>Outcome: significant Group × Time interactions between the two groups of children for the rate of print referencing keywords, (p = 0.019, effect size 0.217) alphabet letter names, (p = 0.041, effect size 0.159) and sound awareness, (p = 0.003, 0.361).</p>	
<p>References</p> <p>Girolametto, L., Weitzman, E. and Greenberg J. (2012) 'Facilitating emergent literacy: efficacy of a model that partner's speech-language pathologists and educators', <i>American Journal of Speech-Language Pathology</i>, 21 (1), pp. 47–63.</p>	<p>Type Programme Practice</p>

<p>Name of intervention</p> <p>Learning Language and Loving it. The programme content adhered to an interactive model of language stimulation child oriented response, interaction prompting response and language modeling response.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Focus on typically developing kindergarteners in urban centres.</p> <p>Expressive language: number of multiword utterances and the number of different words used.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: training sessions included interactive lectures, observation, analysis of videotapes, illustrated programme techniques, group discussions, and role-plays. The individual videotaping sessions occurred during the 2-week interval between evening sessions, each consisting of a 5-minute videotape of caregiver–child interaction followed by 30 minutes of individual feedback and discussion regarding the use of programme strategies. Caregivers were taught to be responsive to children’s initiations, engage children in interactions, model simplified language, and encourage peer interactions. The programme content adhered to an interactive model of language stimulation which focused on three main groups of strategies for enhancing child participation in interactions and modelling simplified language input: (a) child-oriented responses (e.g. waiting for initiations, using verbal and nonverbal responses that follow the child’s plan-of-the-moment, being face to face), (b) interaction-promoting responses (e.g. waiting for turns, using combinations of questions and comments to encourage turns on topic, ensuring that all children in the group are actively participating), and (c) language-modelling responses (e.g. using responsive labels, expansions, and extensions of the child’s topic).</p> <p>Modes of delivery: training is delivered to early years practitioners by a speech-language pathologist. Early years practitioners deliver the intervention individually to children face-to-face and these interactions are videotaped.</p> <p>Materials: chapters in a guidebook entitled Learning Language and Loving It (Weitzman, 1992) accompanied the content of each of the sessions.</p> <p>Location: training delivered in the day-care centre.</p> <p>Frequency/dosage: training took place in eight 2.5-hour sessions over 14 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: quasi-experimental design.</p> <p>Sample: intervention, n = 32; control, n = 32; follow-up, n = 28.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Measurement: transcriptions of video recordings using the Systematic Analysis of Language Transcripts (SALT).</p> <p>Analysis: one-tailed Mann–Whitney U tests.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: No significant differences were found between the two groups of childcare providers for any of the following dependent variables: number of utterances read (in the book-reading activity), number of spontaneous utterances, words per minute, mean length of utterance, type–token ratio, or ratings on the Teacher Language and Interaction Rating Scale. Moreover, there were no significant differences at pre-test between the two groups of children on measures of language productivity, including number of utterances, different words, multiword utterances, and peer-directed utterances.</p> <p>Outcome: intervention children in shared reading and play-dough activities used a greater number of utterances ($d = 1.3$; $d=1.5$), multiword combinations ($d = 1.2$; $d=1.2$), and peer-directed utterances ($d = 0.8$; $d=0.9$).</p> <p>The number of different words did not differ by group. Comparing post-test and follow-up, there were differences in book reading ($d = 0.7$) and in play dough ($d = 1.5$).</p>	
<p>References</p> <p>Girolametto, L., Weitzman, E. and Greenberg, J. (2003) 'Training day care staff to facilitate children's language', <i>American Journal of Speech-Language Pathology</i>, 12, pp. 299–311.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Speech Language Therapy.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>To compare routine speech and language therapy in preschool children with delayed speech and language against 12 months of 'watchful waiting' (parents could request therapy at any time).</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: one-to-one speech and language therapy routinely offered by the therapist. Parents of children in the 'watchful waiting' group could request therapy at any time. All children in the study were reassessed by the research therapists after 12 months. Therapy provided in the study tended to focus on several areas of language simultaneously. Therapy techniques included Derbyshire language scheme tasks, as well as everyday play and games used as contexts for modelling language for the child. Goals covered a wide range of language stages, for example, understanding and building single words, using narratives, and identifying consonants in words. Report provides no further information.</p> <p>Modes of delivery: delivered by a Speech-Language Therapist on a one-to-one basis.</p> <p>Materials: unclear.</p> <p>Location: delivered in community clinics.</p> <p>Frequency/dosage: unclear.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: quasi-experimental.</p> <p>Sample: 159 children with SL difficulties. Intervention, n =71; control, n = 88.</p> <p>Measurement: Bristol language development scales, Vineland socialisation domain.</p> <p>Analysis: chi-squared tests and logistic regression.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: unclear.</p> <p>Outcome: improvement in auditory comprehension was significant in favour of therapy (p = 0.025). No significant differences observed for expressive language, phonology, or language development.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										
<p>References</p> <p>Glogowska, M., Roulstone, S., Enderby, P. and Peters T. J. (2000) 'Randomised controlled trial of community based speech</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>										

and language therapy in preschool children', *BMJ*, 321 (7266).
pp. 923–26.

<p>Name of intervention</p> <p>Vocabulary intervention (part of Read, Play, Learn).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on low SES children.</p> <p>Effectiveness for vocabulary development through an intervention teaching words through book-reading and book-play.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the book-reading and play intervention was developed around two themes (dragon and farm), chosen for their appeal to young children and opportunities for play. Two books per theme were read aloud to students: <i>The Knight and the Dragon</i> by Tomie dePaola and <i>Dragon for Breakfast</i> by Eunice McMullen, or <i>Farmer Duck</i> by Martin Waddell and <i>Pumpkin Soup</i> by Helen Cooper. Ten target words per book—abstract and concrete nouns, verbs, and adjectives—were selected using the following procedures. As an initial step, we identified words in the story that were considered Tier 2, or sophisticated words of high utility (Beck <i>et al.</i>, 2002), and would therefore need additional explanation for children to understand them fully. Additional target words were inserted in the texts because all four books lacked 10 total Tier 2 words. Because some of the books had minimal text, these adaptations typically involved adding sentences with Tier 2 words that described the action depicted in the book’s illustrations. For example, <i>Farmer Duck</i> includes several illustrations of the duck doing work around the farm without any text describing his actions. We added sentences such as ‘[The duck] took his shovel and dug the weeds out’, thereby providing a fuller description of the book’s action without significantly altering the story line. Target words were explained as part of every book-reading: once during book-reading as the word occurred in the text, and once again after each reading finished as part of a vocabulary and plot review. Explanation of vocabulary involved pointing to the word, giving a definition delivered in concise, child-friendly language, the use of gesture, and the example of the word used in another context. Immediately following the book-reading, play sessions were conducted.</p> <p>Modes of delivery: delivered by early years practitioners face-to-face to groups of 3 children.</p> <p>Materials: two books per theme, <i>The Knight and the Dragon</i> by Tomie dePaola and <i>Dragon for Breakfast</i> by Eunice McMullen, <i>Farmer Duck</i> by Martin Waddell and <i>Pumpkin Soup</i> by Helen Cooper.</p> <p>Location: classroom.</p> <p>Frequency/dosage: books were read aloud to children 4 times a</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										

week on consecutive days over two months.	
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: children, N = 240.</p> <p>Measurement: New Word Definition Test—Modified (NWDT–M), and a coding scheme.</p> <p>Analysis: multilevel regression models.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there was no significant difference in mean pre-test NWDT–M scores in the two themes.</p> <p>Outcome: there were significant increases in depth of knowledge for all word types. Concrete nouns, $d = 1.24$; verbs, $d = 0.89$; abstract nouns, $d = 0.56$.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>Hadley, E. B., Dickinson, D. K., Hirsh-Pasek, K., Golinkoff, R. M. and Nesbitt, K. T. (2016) ‘Examining the acquisition of vocabulary knowledge depth among preschool students’, <i>Reading Research Quarterly</i>, 51 (2), pp. 181–96.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Language Focused Curriculum (LFC, Bunce, 1995): enhancement of the verbal interactions among early years practitioners and children.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on low SES population; compared treatment and business-as-usual.</p> <p>Expressive language: percent complex utterances, rate of noun use, number of different words, and upper bound index.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the LFC early years practitioners completed a 3-day workshop and received curriculum materials to facilitate the LFC. LFC provides guidance on identifying and addressing highly specific linguistic objectives within daily and weekly lesson plans (e.g. specific verbal phrase structures, pronouns). LFC also identifies specific behaviours that early years practitioners should use to stimulate language during interactions with children. The LFC manual (Bunce, 1995) provides a detailed description for implementing a half-day, 4-day, or 5-day curriculum emphasizing a rotation of child-centred (e.g. centre time, sharing time) and teacher directed (e.g. story time, group time) activities. Each week’s plan is organized around a particular theme (e.g. places in the community), and daily lesson plans elaborate this theme (e.g. grocery store, doctor’s office). For each daily lesson plan, a comprehensive set of language targets focusing on form and content (i.e. vocabulary) are identified, and these targets are to be addressed in activities across the day. Within the area of form, a repeated goal throughout the curriculum is for children to ‘learn new, and employ a variety of, syntactic constructions’ (Bunce, 1995, p. 100). These syntactic constructions encompass verb/phrase structures (e.g. ‘is landing’), adjective/object descriptions (e.g. ‘large plane’), pronouns (e.g. ‘I, you’), and prepositions (e.g. ‘in, on, under’). Complementing these language targets are social skill (e.g. negotiating with peers for toys) and cognitive skill objectives (e.g. classifying objects) that are also to be addressed in the daily plan.</p> <p>Modes of delivery: early years practitioners deliver the intervention to the whole class face-to-face.</p> <p>Materials: LFC Manual.</p> <p>Location: early years practitioner training location unclear, but intervention is delivered in the classroom.</p> <p>Frequency/dosage: the workshop for early years practitioners is 3 days. The intervention is then delivered over the course of a year.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										

<p>Level of evidence</p> <p>Programme fidelity: over the course of the year, early years practitioners were observed in their classrooms on three occasions to study their classroom instruction and to monitor implementation fidelity. Fidelity to the submission of lesson plans and instructional quality was high and significantly different from controls.</p> <p>Type of evaluation: randomised controlled study.</p> <p>Sample: intervention, n = 100; control, n = 96.</p> <p>Measurement: all children were individually assessed with a battery of language and literacy measures during a 6-week assessment window in the autumn and spring of the academic year (not specified). Language samples were either videotaped or audiotaped and coded Systematic Analysis of Language Transcripts (SALT).</p> <p>Analysis: paired-samples t tests.</p> <p>Attrition: there were some missing data for fall and spring expressive language scores, SES, and days of attendance.</p> <p>Baseline comparison: unclear.</p> <p>Outcome: no systematic differences in spring expressive language ability between LFC and comparison classrooms when controlling for autumn expressive language ability, gender, SES, and attendance.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>Justice, L. M., Mashburn, A., Turnbull, K. P. and Wiggins, A. (2008) 'Experimental evaluation of a preschool language curriculum: Influence on children's expressive language skills', <i>Journal of Speech Language and Hearing Research</i>, 51 (4), pp. 983–1001.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Print Referencing (part of Sit Together and Read project, STAR).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Effectiveness of early years practitioners' use of a print-referencing style during whole-class read-alouds with respect to accelerating 4- and 5-year old children's print-knowledge development.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: early years practitioners in the high-dose print-referencing group attended an 8-hour workshop before the academic year. This included (a) information on children's print knowledge and emergent literacy development, (b) an overview of how to read with a print-referencing style and prior findings of its efficacy, and (c) hands-on practice incorporating references to print in read-aloud sessions with workshop partners.</p> <p>Practitioners received two brief feedback letters (at weeks 8 and 22) detailing strengths and areas for improvement regarding their use of a print-referencing style. Those in the high-dose print-referencing group received directions and materials at the start of the academic year on how to implement a 30-week read-aloud programme in their classrooms using a print-referencing style. Explicit references to specified print targets were integrated into read-aloud sessions.</p> <p>Early years practitioners were given a set of 30 books to be read, a schedule for reading, and a description of the scope, sequence, and frequency of print-related targets to be addressed during each read-aloud. A set of 15 print-knowledge targets were assigned to each book. Practitioners addressed two print targets each time they read a book and were given general suggestions on how to use verbal (e.g. questioning about print) and nonverbal (e.g. tracking the print) references.</p> <p>Modes of delivery: delivered by early years practitioners face-to-face with children with the whole class.</p> <p>Materials: a set of all books to be read, a schedule for reading, and a description of the scope, sequence, and frequency of print-related targets to be addressed during each read-aloud.</p> <p>Location: unclear where the 8-hour training workshop took place; the intervention was delivered in the classroom.</p> <p>Frequency/dosage: an 8-hour workshop training early years practitioners then 120 read-aloud sessions conducted in their classrooms over a 30-week period. Practitioners read books aloud four times within a given week with no more than one reading session per day.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										

<p>Level of evidence</p> <p>Programme fidelity: procedural fidelity to study conditions was measured by asking early years practitioners in both conditions to submit video recordings of their study-related whole-class read-alouds every 2 weeks throughout the 30-week programme. Overall, all 59 early years practitioners submitted at least 8 videos, and 95% submitted at least 10 videos. The difference in frequency of verbal references to print between the two groups of early years practitioners at the three time points was both statistically significant and large in size ($d = 0.96, 1.05, \text{ and } 0.99$, respectively). These results indicate that children in the print-referencing classrooms were exposed to substantially more teacher references to print during read-alouds compared to children in the comparison classrooms.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 59 early years practitioners: intervention, $n = 31$; control, $n = 28$. Children: intervention, $n = 201$; control, $n = 178$.</p> <p>Measurement: Clinical Evaluation of Language Fundamentals—Preschool: 2.</p> <p>Analysis: hierarchical linear modelling.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: groups were comparable at baseline.</p> <p>Outcome: intervention group had significantly higher print knowledge scores in the spring than did children in the comparison classroom ($p = 0.45$). Children’s language outcomes did not differ across conditions (CELF-P2) ($p = 0.650$).</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>Justice, L. M., McGinty, A. S., Piasta, S. B., Kaderavek, J.N. and Fan, X. (2010) ‘Print-focused read-alouds in preschool classrooms: intervention effectiveness and moderators of child outcomes’, <i>Language, Speech and Hearing Services in the Schools</i>, 41 (4), pp. 504–20.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Read It Again, RIA (Justice, McGinty, Beckman and Kilday, 2006).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Focus on rural, medium/low SES population. Used to enhance young children’s language and emergent literacy skills with minimal material costs or ongoing professional intervention.</p> <p>Compared treatment and business-as-usual groups.</p> <p>Expressive language: grammar, morphology, and vocabulary.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Whole classroom delivery by early years practitioners took place twice-weekly over 30 weeks. Practitioners took part in 2-phases of training: Phase 1 was a one-and-half-day workshop after which early years practitioners implemented a pilot of RIA over 15 weeks. The second phase was a half-day workshop focusing on expectation for implementation over the following 30 weeks.</p> <p>RIA consists of 60 lesson plans each including 3 sets of activities organised around whole-class reading: before reading, during reading and after reading. Each lesson addresses two of the four instructional domains in the RIA scope: vocabulary, narrative, print knowledge and phonological awareness. Each lesson is designed to last approximately 20–30 minutes.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Quasi-experimental design; 59 early years practitioners (31 intervention, 28 control).</p> <p>Significant positive effect of RIA not moderated by initial language skills.</p> <p>Cohen’s D: grammar = 0.24, morphology = 0.24, and vocabulary = 0.17.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										
<p>References</p> <p>Justice, L. M., McGinty, A. S., Cabell, S. Q, Kilday, C. R., Knighton, K. and Huffman, G. (2010) ‘Language and Literacy Curriculum Supplement for Preschoolers Who Are Academically At Risk: A Feasibility Study’, <i>Language, Speech and Hearing Services in Schools</i>, 41, pp. 161–78.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>										

<p>Name of intervention</p> <p>Bespoke Tier 2 intervention on phonological awareness.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on low SES population.</p> <p>Teaching objectives followed a hierarchy for teaching the concept of initial sound identification.</p> <p>Phonology: beginning sound awareness.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: intervention early years practitioners followed a script that included 8 components: teaching, objective, anticipatory set, purpose, input, modelling, checking for understanding, guided practice, and closure. The first sessions taught children to listen for sounds in the environment and for letter sounds. The next sessions focused on the concept of beginning, or first using, a variety of toys and manipulatives, and then using letters and letter sounds. The last session focused on combining the concepts, sounds, and beginning/first in the context of CVC words, with the last week focused specifically on identifying beginning sounds in words.</p> <p>Modes of delivery: four professional development staff, trained early years practitioners or speech-language pathologists from the Tempe Early Reading First Partnership, delivered Tier 2 intervention in groups of 3 or 4 children.</p> <p>Materials: toys and manipulatives.</p> <p>Location: each session took place in the classroom.</p> <p>Frequency/dosage: sessions were 20–25 minutes twice a week (on non-consecutive days) for 6 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills— phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: treatment fidelity was 100% for each of the 4 interventionists.</p> <p>Type of evaluation: quasi-experimental design.</p> <p>Sample: 60 participants (34 intervention and 26 control).</p> <p>Measurement: PALS-PreK beginning sounds awareness subtest. DIBELS initial sound fluency.</p> <p>Analysis: paired-samples t test.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there was a significant difference in age between those who qualified for the intervention and those who did not qualify. The intervention group were younger and had lower language scores on the PALS-PreK.</p> <p>Outcome: the intervention was successful for 71% of the children. Effect sizes of a bespoke task ranged from $d = 0.61$ to $d = 1.94$. Mean effect size was $d = 1.51$ ($SD = 0.54$).</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>References</p> <p>Koutsoftas, A. D., Harmon, M. T. and Gray, S. (2009) 'The Effect of Tier 2 Intervention for Phonemic Awareness in a Response-to-Intervention Model in Low-Income Preschool Classrooms', <i>Language, Speech and Hearing Services in Schools</i>, 40 (2), pp. 116–30.</p>	<p>Type</p> <p>Programme Practice</p>

<p>Name of intervention</p> <p>A comprehensive early childhood teacher professional development.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td style="background-color: #cccccc;">X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>To examine if a professional development programme focused on the planning and implementation of language/literacy instructional activities effectively promoted children's 'grow' on standardized measures of expressive vocabulary, complex receptive language, PA, and letter and print knowledge.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: the professional development programme was on-line. Intervention included (1) early years practitioner on-line professional development with facilitation, (2) classroom mentoring, (3) implementation of a research-based curriculum, and (4) technology-driven progress monitoring that informed instruction. Online training was called eCircle and included 9 topics: classroom management, best practices/responsive teaching, setting the stage for children's talk, reading aloud, phonological awareness, and language development. Mentoring support for early years practitioners included: helping with classroom arrangement, modelling instruction, supporting lesson plans, and reflective follow-up. Personal Digital Assistant (PDA) assisted early years practitioners in receiving systematic guidelines in the assessment procedures. Evaluation of child skills, including letter knowledge, vocabulary, and PA, are included in the PDA progress monitoring system. Seven state-approved language and literacy curricula were included and selected by participants for their classroom. The majority of classrooms chose to use Building Language and Literacy, Let's Begin with the Letter People, or DLM Childhood Express.</p> <p>Modes of delivery: professional development programme is online</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										

<p>and there is in-classroom mentoring; then early years practitioners delivered activities with full class, face-to-face.</p> <p>Materials: Personal Digital Assistant (PDA) technology.</p> <p>Location: online development programme for early years practitioners, then intervention delivered in the classroom.</p> <p>Frequency/dosage: unclear how much contact time was involved in training, however early years practitioners implemented their training over two years.</p>	
<p>Level of evidence</p> <p>Programme fidelity: a five-day training course for mentors was first conducted and covered all aspects of the programme—ordering materials, mentoring practitioners, weekly practitioner observation, practitioner training, progress monitoring, and external observations and child testing. To assess fidelity, at the beginning of the year a Classroom Environmental Checklist was completed for every programme classroom and was discussed on follow up visits. Monthly conference calls were conducted with focused agendas between State Center management staff and mentors.</p> <p>To assess teacher fidelity, the 11 mentors submitted monthly reports of successes and challenges in the key programme components, ‘Glows and Grows’ reports of their visits with each programme practitioner, plus a mentoring log where the activity in the classroom was coded. In addition, two fidelity visits to observe the early years practitioner mentoring process were completed by investigators across Year 1 and three across Year 2, at each of the 11 sites.</p> <p>Type of evaluation: randomised trial study.</p> <p>Sample: intervention, n = 106; controls, n = 1107 (year 1); intervention new starters, Year 2, n = 126; second time intervention. n = 86.</p> <p>Measurement: the Expressive One-Word Picture Vocabulary Test (EOWPVT), Preschool Language Scale—4th Edition, Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPPP).</p> <p>Analysis: ANCOVA.</p> <p>Attrition: 9% attrition rate.</p> <p>Baseline comparison: there were no statistically significant differences on any of the language or literacy measures at pre-test, with effect sizes ranging from 0.06 to 0.09.</p> <p>Outcome: vocabulary $d = 0.35$ (effect of length of early years practitioners’ programme, participants’ age at pre-test and language of testing). Complex language, $d = 0.34$ (effect of length of early years practitioners’ programme, participants’ age at pre-test and pretest scores). Letter and print knowledge, $d = 0.34$ (effect of length of early years practitioners’ programme, participants’ and pretest scores). PA, $d = 0.26$ (effect of age at pre-test and the language of testing).</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>

<p>References</p> <p>Landry, S., Swank, P. R., Anthony, J. L. and Assel, M. A. (2011) 'An experimental study evaluating professional development activities within a state funded pre-kindergarten programme', <i>Reading and Writing</i>, 24 (8), pp. 971–1,010.</p>	<p>Type</p> <p>Programme Practice</p>

<p>Name of intervention</p> <p>Talk Boost.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Evaluation of an intervention—Talk Boost—to treat children’s receptive and expressive language in the early school years.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the intervention is prescriptive. Training for teachers and teaching assistants stressed the principles of the intervention and emphasized the need to use the materials consistently. Receptive and expressive language are targeted through activities covering understanding and using vocabulary, sentence construction, and narrative. Listening/attention and social interaction are also targeted. There are 5 strands to the intervention. Four are covered in each of the 30 sessions, all supported by picture materials and games. An important element of the intervention was mandatory whole-class activities for which materials were provided where there were optional follow-up activities for parents/carers to carry out.</p> <p>Modes of delivery: training of early years practitioners is provided by the first author. Children primarily received the intervention from early years practitioners in groups of 4, although there were whole-class activities also.</p> <p>Materials: picture materials and games.</p> <p>Location: unclear where the training was delivered; intervention is delivered in the classroom.</p> <p>Frequency/dosage: training lasted one day; intervention sessions lasted 30 minutes and were given three times a week for a 10-week period.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 180 children; intervention, n = 72 + 39 EAL children; control, n = 69.</p> <p>Measurement: Bus Story, Renfrew Action Picture Test.</p> <p>Analysis: MANOVA and ANOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: groups were comparable at baseline; children with notably different language ability (above the mean on two measures) were eliminated from the final analysis.</p> <p>Outcome: RAPT: treated children made more improvement than the controls and the interaction between time and group was</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>significant ($p = 0.001$).</p> <p>Grammar scores from the Renfrew Action Picture Test: interaction group greater improvement. Time was again significant ($p < 0.001$). The interaction of group by time was only marginally significant ($p = 0.05$).</p> <p>Bus Story: the interaction of group by time ($p = 0.001$) was strongly significant again showing that treated children made greater improvement than control children.</p> <p>Comparison of EAL children with English speaking controls: significant improvement in favour of EAL children ($p = 0.1$).</p>	
<p>References</p> <p>Lee, W. and Pring, T. (2016) 'Supporting language in schools: Evaluating an intervention for children with delayed language in the early school years', <i>Child Language Teaching and Therapy</i>, 32 (2).</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Emergent Literacy Intervention.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>We aimed to determine whether systematic ascertainment of language delay at age 4 years, followed by a 10-month, one-on-one intervention, improves language and related outcomes at age 5 years.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: interventions were dialogic reading, standard shared reading, phonological awareness, and letter knowledge intervention. Dialogic reading was conducted in small groups. There are three tiers that represent different levels of question complexity, and the feedback includes questions that extend conversations about the book to children’s own experiences. Level I includes simple ‘wh-’ questions, modelling, and corrective feedback (e.g. praise, repetition, labelling). Level II includes primarily open-ended questions and expansions. Level III includes questions that extend conversations about the book to children’s own experiences. The standard shared reading intervention also was conducted in small groups; however, rather than using the books as props to ask children questions and provide feedback, children were simply read the books.</p> <p>Small group phonological awareness intervention occurred 5 days a week for 10 minutes over 12 weeks: a total of approximately 600 minutes (10 hours) from late January until May. The goal of these activities was to help the children become aware of the sound structure of words by engaging them in a variety of word-play games. The hierarchy of skills taught progressed from a whole word to smaller and smaller parts of a word. The first 2 weeks were spent on rhyming words. The children were asked to imitate and label rhyming words and eventually to discriminate between words that rhymed and those that did not. This was followed by 2 weeks of manipulating compound words. The letter-knowledge activities were implemented 5 days a week for 10 min a day for 12 weeks—a total of approximately 600 minutes (10 hours). Manipulatives were used, including magnetic letters, picture cards, pocket charts, dry erase markers, and white boards. During the first 2 weeks, the children were taught what letters are used for, and why they are important. Next, the children were taught the difference between letters and numbers and the difference between uppercase and lowercase letters. Once the children had a preliminary understanding of what a letter was, they learned how to identify their own name and the first letter in their name. From the third to the sixth weeks, the children learned the names of 10 letters. During the final 4 weeks, the children learned four new letter sounds and continued categorizing pictures by the initial sound in the word.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										

<p>Modes of delivery: all intervention activities for this project were provided by project staff to small groups of children (3–5 children).</p> <p>Materials: books and manipulatives.</p> <p>Location: classroom.</p> <p>Frequency/dosage: pull-out interventions that lasted for approximately 10 to 20 minutes a day, 5 days a week, throughout the school year.</p>	
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 93; control, n = 91.</p> <p>Measurement: Peabody Picture Vocabulary Tests-Revised, Clinical Evaluation of Language Fundamentals–Preschool, the rhyme oddity task, the rhyme matching task, the blending words task, the blending syllables and phonemes task, the blending multiple choice task.</p> <p>Analysis: pairwise comparisons.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there were no significant overall effects of intervention group for any of the language measures at pretest.</p> <p>Outcome: at age 5 years, there was weak evidence of benefit to expressive language (P = 0.12, effect size 0.2), but not receptive language (P = 0.69, effect size 0.05). The intervention improved phonological awareness skills (P = 0.001, effect size 0.6) and letter knowledge (P = 0.03, 0.3).</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>Lonigan, C. J., Purpura, D. J., Wilson, S. B., Walker, P. M. and Clancy-Menchetti, J. (2013) 'Evaluating the components of an emergent literacy intervention for preschool children at risk for reading difficulties', <i>Journal of Experimental Child Psychology</i>, 114 (1), pp. 111–30.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Picture books.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Focus on kindergarteners and 1st graders.</p> <p>Expressive language: oral recall .</p> <p>Picture book designed to allow 2 manipulation strategies: to improve the indexing of concrete objects to their respective symbolic representations.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										

<p>Delivery</p> <p>Procedures: the intervention involves 2 strategies: listening with manipulation or listening with pictures. It involves a pre-test and 3 instructional periods. Instructional period (1) activity vs pictures where participants listened to a story and applied a strategy (moving manipulatives or viewed a picture), (2) activity plus imagery vs pictures plus imagery, where participants imagined story events prior to manipulating or viewing picture, and (3) imagery only, where participants did not have access to visual clues but imagined only. Each instructional period was followed by a 2-minute distractor; free recall and cued recall.</p> <p>Modes of delivery: Delivered face-to-face individually by researcher.</p> <p>Materials: four 20-sentence stories and one six-sentence training story were developed for the study.</p> <p>Location: quiet room in a school.</p> <p>Frequency/dosage: 3 consecutive instructional periods lasted approximately 40 minutes.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: N = 19 children in each strategy.</p> <p>Measurement: scored proportion of free and cued recalls correct. For free recall, scores were assigned at the sentence level. Each sentence recalled by a student was matched with its respective sentence from the original story and scored 1 point if it was correct, a 1/2 point if it was partially correct, and no point if it was incorrect (20 points possible). Cued recall was assessed by 12 items for each story. Cued recalls were scored as 0 or 1 point depending on whether the answer was correct, with 12 points possible.</p> <p>Analysis: ANCOVA.</p> <p>Baseline comparisons: groups were comparable at baseline.</p> <p>Outcome: manipulation improved oral recall.</p> <p>Cohen's D: recall of story events 1.45 for kindergarteners and 0.80 for 1st graders.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted Indicated—targeted</p>
<p>References</p> <p>Marley, S. C. and Szabo, Z. (2010) 'Improving Children's Listening Comprehension with a Manipulation Strategy', <i>Journal of Educational Research</i>, 103 (4), pp. 227–38.</p>	<p>Type</p> <p>Programme Practice</p>

<p>Name of intervention</p> <p>Family-centred practice.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Family-centred practice (FCP) impacts on children with speech and/or language disorder compared to usual practice.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the parent/carer was encouraged to involve other important people in their child’s life, including family and friends, in the child’s therapy. Within the FCP intervention, each of the individual clinic-based sessions was divided into three distinct components. First, component discussion with SLP. Second, for the direct therapy component, the parent/carer systematically assumed increasing responsibility for the therapy tasks completed with their child within the clinic setting, and selected which therapy tasks to undertake. The SLP modelled new techniques where necessary for the parent/carer to learn. The final component of the session was spent discussing activities (formal and informal) that the family felt could be completed during the week at home and in other environments (e.g. childcare and time with grandparents).</p> <p>Modes of delivery: the practice is delivered by a speech-language pathologist.</p> <p>Materials: PowerPoint. The SLP developed resources specific to the participant’s needs and as requested by the parent/carer, such as incorporating key words specific to the participant and family into resources, including games with which the family was already familiar. The parent/carer was encouraged to keep a record of words or concepts with which their child was having difficulty.</p> <p>Location: delivered in clinic.</p> <p>Frequency/dosage: initial therapy was for 5 weeks, followed by a 3-week break, and then a further 4-week block of therapy.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: matched pairs randomly allocated to intervention or usual practice (control). Intervention, n = 10; control, n = 10.</p> <p>Measurement: articulation and/or Phonology Assessments of the DEAP, the percentage of phonemes correct (PPC), Information and Grammar scores of the RAPT.</p> <p>Analysis: t-tests and ANCOVA.</p> <p>Attrition: unclear.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Baseline comparison: the FCP and UP groups were equivalent at baseline for the speech and language outcomes pre-intervention.</p> <p>Outcome: no statistically significant differences between the groups for the speech and language outcomes post-intervention. There were more participants in the UP group who deteriorated or did not change on the RAPT Information (n = 6) and Grammar (n = 5) tests post-intervention than in the FCP group (n = 1 and 3, respectively).</p>	
<p>References</p> <p>McKean, K., Phillips, B. and Thompson, A. (2012) 'A family-centred model of care in paediatric speech-language pathology', <i>International Journal of Speech Language Pathology</i>, 14 (3), pp. 235–46, DOI: 10.3109/17549507.2011.604792</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Lexicon Pirate.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Investigate whether preschool children with lexical deficits profit from an intervention approach that focuses on implementing lexical learning strategies.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: ‘Lexicon pirate’ is an intensive short-term therapy designed to kick-start word learning. The therapy method contains elements of self-management. It encourages the children to learn actively by discovering lexical gaps. The children are taught a variety of semantic and lexical learning strategies. They are encouraged:</p> <ul style="list-style-type: none"> • to ask for the name of a word they do not know (missing or insufficiently stored phonological representations); • to ask for the meaning or the function of objects and actions they do not know (missing or insufficiently stored semantic representations); • to support encoding of lexical entries by elaborating word meanings, by segmenting the phonological word forms (clapping or jumping to the syllables of a word) or by using rehearsal strategies. (Rehearsal prevents verbal material in the phonological loop of the working memory from decaying, and allows a detailed analysis of the phonological representation of the lexical entry to be stored: Baddeley, 2003; Gathercole, 1993); • to categorize lexical entries on the basis of shared/distinct semantic features; and • to support word retrieval by repeating and frequently using a word. (Frequent repetition/production of a word leads to better storage as well as facilitated retrieval: Anderson, 2005). <p>Each therapy unit covers a certain topic and consists of three to four phases. The child accompanies Pirate Tom (hand puppet) on a treasure hunt. Tom is only interested in unknown things. While up until now situations of not knowing something led to frustration, shame, and discouragement, ‘not knowing’ becomes the key to success here. Discovering unknown words creates a feeling of success. The puppet Tom serves as a model that repeatedly demonstrates the above-mentioned strategies.</p> <p>Modes of delivery: intervention is carried out by a speech-language therapist.</p> <p>Materials: hand puppet, treasure chest with objects and pictures.</p> <p>Location: sessions take place in a separate room in the children’s kindergarten.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										

<p>Frequency/dosage: 15 intervention sessions: 13 intervention sessions last 30 minutes, carried out three times per week within a period of 5 weeks; in addition, there are two meetings with parents for consultation and instruction.</p>	
<p>Level of evidence Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 26; control, n = 25.</p> <p>Measurement: Patholinguistische Diagnostik bei Sprachentwicklungsstörungen (PDSS), Aktiver Wortschatz Test für 3- bis 5- jährige Kinder: Revised (AWST-R).</p> <p>Analysis: ANOVA.</p> <p>Attrition: three children were excluded from the final analysis.</p> <p>Baseline comparison: the groups' means differed significantly only in one assessment of selection diagnostic—comprehension of verbs—with significantly lower mean T scores for the control group. Expressive vocabulary size and nonverbal intelligence did not differ significantly between the groups.</p> <p>Outcome: effects on trained words—6 and 12 months after completion of the intervention (T3 and T4, respectively), a significant difference in naming performance between Control Group and Experimental Group could still be found ($p = 0.001$, $p < 0.001$) in favour of EG.</p> <p>Expressive vocabulary test AWST-R—12 months after the intervention; the mean score of the experimental group was higher than that of the control group ($p = 0.024$). The gain in expressive vocabulary size from T1 to T4, however, did not differ between the groups to a statistical significant extent ($p = 0.137$).</p>	<p>Target Universal Selected—targeted Indicated—targeted</p>
<p>References Motsch, Hans-Joachim and Ulrich, Tanja (2012) 'Effects of the strategy therapy "lexicon pirate" on lexical deficits in preschool age: A randomised controlled trial', <i>Child Language Teaching and Therapy</i>, 28 (2).</p>	<p>Type Programme Practice</p>

<p>Name of intervention</p> <p>Story telling and story acting practice (STSA, Paley, 1990).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Focus on low SES kindergarteners in medium sized urban areas. Expressive language (vocabulary) and receptive language (narrative comprehension), phonological and print awareness.</p>	<p>Age range</p> <p>0–2 X 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: in the storytelling, children would voluntarily tell a story with a limit of one page per story. Early years practitioners wrote down the story then repeated it back to the child, requesting clarifications using questions. The child chose which character they wanted to play then chose others from their class to play other roles. Class teachers then read the story aloud while the children in character acted it out. Teachers were encouraged to carry out STSA as frequently as possible, but at least twice a week when the RA visited the classroom. STSA was conducted from September–May.</p> <p>Modes of delivery: early years practitioners delivered intervention to full size groups with help from a research assistant.</p> <p>Materials: one class storybook where stories can be written down.</p> <p>Location: classroom.</p> <p>Frequency/dosage: twice a week for two years.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: frequency of delivery varied between once and twice a week.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 119 children in Year 1, intervention, n = 52; control, n = 97; second year, intervention = 59 (and 59% of control).</p> <p>Measurement: expressive vocabulary test; adaptation of the Test of Narrative Language; Phonological Awareness Literacy Screening: PreK.</p> <p>Analysis: hierarchical Linear Modelling.</p> <p>Attrition: 35% for control classes and 24% for intervention classes.</p> <p>Baseline comparison: no significant pre-treatment differences between groups.</p> <p>Outcome: expressive vocabulary (EVT). Overall improvement pre-to post-test but no significant differences as a function of condition nor year X condition interaction. Narrative</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>comprehension, $d = 0.35$.</p> <p>Print and word awareness, $d = 0.58$.</p> <p>Beginning sound awareness, $d = 0.74$.</p> <p>Rhyming awareness: no significant improvement pre-to post-test.</p>	
<p>References</p> <p>Nicolopoulou, A., Cortina, K. S., Ilgacz, H., Cates, C. B. and de Sá, B. D. (2015) 'Using a narrative- and play-based activity to promote low-income preschoolers' oral language, emergent literacy, and social competence', <i>Early Childhood Research Quarterly</i>, 31 (2), pp. 147–62.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Instruction on alphabet knowledge, phonemic awareness, and oral language through activities selected from <i>Ladders to Literacy: A Kindergarten Activity Book</i> (O'Connor, Notari-Syverson, and Vadasy, 2005).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td style="background-color: #cccccc;">X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on rural and urban kindergartens serving English speaking children and ELLs.</p> <p>Effect of early (September) versus delayed (February) reading intervention on kindergarten children with poor levels of language.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: three areas of instruction: alphabet knowledge, phonemic awareness, or oral language. Activities across these areas were selected from <i>Ladders to Literacy: A Kindergarten Activity Book</i>. In September and October, letter sounds were introduced at a rate of 1–2 per week. Phonemic awareness activities included syllable clapping and saying words slowly. Most words were represented with pictures and objects. In November and December, taught letters and sounds were reviewed every session. Oral language activities focused on more descriptive language. In January and February, a wider-range of letters was used in onset-rhyme blending and segmenting activities, including manipulating letters on a card to represent where they would occur in a word. During the last few months of school, some students in the immediate treatment group began segmenting words into three phonemes and representing all phonemes in words with letter tiles in an activity called 'segment-to-spell'.</p> <p>Modes of delivery: teaching assistants delivered in pull out small groups of 2–3 students.</p> <p>Materials: pictures and objects, letters on cards.</p> <p>Location: carried out in the classroom.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										

<p>Frequency/dosage: 15-min intervention 3 times a week.</p>	
<p>Level of evidence</p> <p>Programme fidelity: the TAs were observed for their first several instructional sessions, and then weekly by the lead early years practitioner in their school, and monthly by project staff. We found considerable variance in fidelity to treatment across TAs and schools and frequently provided booster sessions to some TAs. The minutes of intervention each student received ranged from 270 to 1,430 in the immediate, and from 111 to 705 in the delayed treatment.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 38; control, n = 31.</p> <p>Measurement: PPVT-III, Wechsler Preschool and Primary Scale of Intelligence™, 3rd edition.</p> <p>Analysis: MANOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there were no significant differences between immediate and delayed intervention groups.</p> <p>Outcome: effects of immediate versus delayed intervention: letter naming fluency, Cohen's d = 0.25; phoneme segmentation fluency, d = 0.66; and non-word fluency, d = 0.83.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>O'Connor, R. E., Bocian, K., Beebe-Frankenberger, M. and Linklater, D. L. (2010) 'Responsiveness of Students with Language Difficulties to Early Intervention in Reading', <i>Journal of Special Education</i>, 43 (4), pp. 220–35.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Invented spelling.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Focus on English-speaking kindergarteners of diverse SES's receiving an intensive early balanced literacy curriculum. Examine whether guiding children's invented spelling would facilitate learning reading more than phonological awareness instruction.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: invented spelling condition: children were dictated 10 words and encouraged to try their best to spell each one. The children were told that it did not matter if their words were spelled the same as an adult might spell them and that there was no right or wrong way to write the word. For each item spoken by the experimenter, a corresponding picture was shown to avoid confounds with memory. Each word was spoken three times, twice at a standard rate and once in an exaggerated fashion in which each phoneme was stretched (yet still blended together). Of the 10 words dictated, 3 were original words used by Tangel and Blachman (1992, 1995), and all were composed of a limited set of 13 letters taught in a subsequent instructional study. Given that children's invented spellings are influenced by the articulatory characteristics of the words (Read,1971,1975), the additional words were chosen to include characteristics that were absent in Tangel and Blachman's original stimulus set: voiced stop consonants, back vowels, and a diphthong. Together, the 10 words contained a range of vowels and consonant types (with respect to characteristics of manner, place, and voicing). Words were presented orally and in picture form and repeated 4 times, children then wrote the word down and feedback was given to them by the instructor.</p> <p>Modes of delivery: intervention is delivered by a Speech-Language Pathologist and early years practitioner.</p> <p>Materials: pictures of words.</p> <p>Location: children were seen individually in a quiet room or hallway within their school.</p> <p>Frequency/dosage: assessment took place over two sessions per child, the second of which occurred within 7 days of the first session. Sessions did not exceed 30 minutes.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: invented spelling, n = 20; PA, n = 20.</p> <p>Measurement: Peabody Picture Vocabulary Test–Revised, Test</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>for Auditory Comprehension of Language, Numbers and Variety test.</p> <p>Analysis: hierarchical regression analyses.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: groups were comparable on spelling, all were children who struggled with spelling.</p> <p>Outcome: between-group differences, Cohen's $d = 0.66$.</p> <p>Main effect of trial, $d = 1.34$; time, $d = 1.02$, and condition (invented spelling and phonological awareness), $d = 0.54$; and a Time \times Condition interaction, $d = 0.88$.</p>	
<p>References</p> <p>Ouellette, G. P. and Senechal, M. (2013) 'A window into early literacy: Exploring the cognitive and linguistic underpinnings of invented spelling', <i>Journal of Experimental Education</i>, 81 (2), pp. 261–79.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>WOW (World of Words).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Focus on low SES kindergarteners in urban areas.</p> <p>Effect of 12-min daily supplemental vocabulary intervention where teaching words in taxonomies supports the learning of difficult words and inference making.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: WOW was introduced to early years practitioners in the winter term through a day-long workshop that explained the approach and the instructional design behind its development. Materials were provided, including DVD player, DVD with video clips, information books, picture cards, and instructional guides for each of the topics. Early years practitioners agreed to use the supplementary curriculum during the whole-group circle time for the 10- to 12-minute instructional period each day. The WOW curriculum is an embedded multimedia programme using videos, pictures, and books to augment learning, early vocabulary, and conceptual learning. It includes two science-based units, living things and healthy habitats, organised across 4 topics. Sequence involves helping the child to ‘get-set’ for learning and give meaning, to ‘build bridges’ to what children have already learnt and what they will learn, and to ‘step back’ giving children opportunity for discussion.</p> <p>As an illustration of the kind of instruction provided, consider the vocabulary instruction from the topic ‘Insects’. The 8-day sequence begins each day with a ‘tuning in’—a rhyme, song, or word-play video clip that is shown from a DVD to bring children together. The early years practitioner follows this activity with additional examples, engaging the children in a briskly paced call-and-response set of interactions. The tuning-in is followed by a ‘content’ video that introduces children to the definition of the category. After the video, the early years practitioner engages the children, focusing on ‘wh’ questions. She might ask, ‘Where does a katydid live?’, ‘What is an insect?’. The words are then reinforced using an information book (i.e. in this case, on insects) specially designed to review the words just learned (e.g. examples of Tier 2 words: antennae, segments, camouflage, familiar, wings, outside) and to provide redundant information in a different medium. On subsequent days, the practitioner increasingly supports children’s vocabulary learning using additional videos that focus on new words in and outside the category, helping to build children’s knowledge of the properties (e.g. insects have six legs and three body segments) that are related to the category. Following the video, the early years practitioner uses the information book and picture cards to engage children in sorting tasks, including words that are not</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										

<p>clearly in or out of the category (e.g. 'Is a bat an insect?'), challenging children by giving them problems to solve, such as 'Time for a challenge'. Last, the children review their learning through journal-writing activities that involve developmental (phonic) writing.</p> <p>Modes of delivery: early years practitioners delivered intervention in their whole group classes.</p> <p>Materials: videos, pictures and books.</p> <p>Location: intervention delivered in the classroom.</p> <p>Frequency/dosage: 12 minutes per day, each lesson taught across 8-day sequence.</p>	
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: quasi-experimental design.</p> <p>Sample: intervention, n = 89; control, n = 89.</p> <p>Measurement: WOW expressive vocabulary test.</p> <p>Analysis: percentage of correctly identified words.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there were statistically significant differences between groups on the WOW expressive language test in favour of the treatment condition. However, there were no significant differences between groups on the PPVT standardized scores.</p> <p>Outcome: expressive vocabulary, d = 0.64 Word labelling, d = 0.16. Word properties, d = 0.84 Sorting words taught, d = 1.16, untaught, d = 0.99.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>Neuman, S. B. and Dwyer, J. (2011) 'Developing Vocabulary and Conceptual Knowledge for Low-Income Preschoolers: A Design Experiment', <i>Journal of Literacy Research</i>, 43 (2), pp. 103–29.</p> <p>Neuman, S. B., Newman, E. H. and Dwyer, J. (2011) 'Educational Effects of a Vocabulary Intervention on Preschoolers' Word Knowledge and Conceptual Development: A Cluster-Randomised Trial', <i>Reading Research Quarterly</i>, 46 (3), pp. 249–72.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Story Champs (Spencer and Petersen, 2012).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Focus of population.</p> <p>Compared English and Spanish.</p> <p>Expressive language: grammar—causal subordination and story grammar.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: a series of pictures depicting 5 story grammar elements (character, problem, feeling, attempt, and consequence) accompany each Story Champs story. Four steps of intervention cycle: reading and modelling the story, then supporting the child in retelling the story 3 times while facing pictures and icons. Multiple cycles were possible in each session. During intervention, interventionists modelled and verbally prompted children to use the targets that were selected specifically for each participant. Prompts include indirect questions, direct questions, direct prompting of story grammar element, cloze procedures, and models of grammar targets. In general, earlier steps of the intervention cycle were prompted using more restrictive prompts, and in the later steps interventionists used less restrictive prompts as the children used the targets more independently. However, anytime a child missed an opportunity to use the target(s) or used it incorrectly, he or she was prompted to use it correctly. Participants were required to always produce the causal subordinating conjunction 'because' using a main clause and a subordinate clause (e.g. 'He ran home because he needed to get help').</p> <p>Modes of delivery: delivered by authors as interventionists in small groups of 3 and 4.</p> <p>Materials: storybooks.</p> <p>Location: classroom.</p> <p>Frequency/dosage: children in the treatment group received approximately 18 sessions (depending on absences) of small-group narrative intervention, twice a week for 9 weeks</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: fidelity of the Story Champs intervention was 94% (89% to 100%), fidelity of administration of the test of narrative retell subtest was 97% (94% to 100%), and fidelity of administration of the 'Frog Where Are You?' narrative retell was 100%.</p> <p>Type of evaluation: quasi-experimental study.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Sample: intervention, n = 42; control, n = 31.</p> <p>Measurement: test of narrative retell; Renfrew Bus Story.</p> <p>Analysis: ANCOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: groups were comparable at baseline in demographic characteristics, however the treatment groups scored lower on language ability as measured by the CELF-P.</p> <p>Outcome: intervention was efficacious for both causal subordination and story grammar. Cohen's D = 1.21.</p>	
<p>References</p> <p>Petersen, D. B., Thompson, B., Guiberson, M. M. and Spencer, T. D. (2016) 'Cross-linguistic interactions from second language to first language as the result of individualized narrative language intervention with children with and without language impairment', <i>Applied Psycholinguistics</i>, 37 (3), pp. 703–24.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Professional development: conversational responsiveness (adapted from Learning Language and Loving it).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Focus on low SES kindergarteners in mid-sized urban communities.</p> <p>Effect of early years practitioner's responsiveness education on children's language: total number of utterances, number of different words, and mean length of utterance.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the professional development focused on conversational responsiveness in the classroom. Training included 8 sessions that focused on strategies to facilitate communication as well as ways to enrich children's language during conversation by providing language models. Training included PowerPoint, videos, and role-play. Every 2 weeks early years practitioners submitted a 20-minute video of their teacher-child interactions. In total 15–20 hours of professional development was provided. Early years practitioners were encouraged to use strategies throughout the school day during a variety of activities.</p> <p>Modes of delivery: workshops were conducted by two research staff. Early years practitioners deliver the intervention in their whole group classes.</p> <p>Materials: PowerPoint, videos, manual.</p> <p>Location: training took place in a training institute.</p> <p>Frequency/dosage: 15–20 hours professional development, then intervention delivered over the course of a year.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: 90% of videos involved 3–7 children. High reliability of coding videos, with 86% and 88% exact agreement among coders across the five communication-facilitating and four language-developing strategies, respectively.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 49 preschool early years practitioners: intervention, n = 25; control, n = 24.</p> <p>Measurement: systematic analysis of language transcripts.</p> <p>Analysis: unconditional growth models.</p> <p>Attrition: three early years practitioners in the treatment group did not submit their 24 week videos.</p> <p>Baseline comparison: groups of early years practitioners were comparable at baseline.</p> <p>Outcome: total utterances, d = 3.18.</p> <p>NDW, d = 5.30.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>MLU, d = 4.96. Follow up NDW, d = 2.75.</p>	
<p>References Piasta, S. B., Justice, L. M., Cabell, S. Q., Wiggins, A. K., Turnbull, K. P. and Curenton, S. M. (2012) 'Impact of professional development on preschool early years practitioners' conversational responsivity and children's linguistic productivity and complexity', <i>Early Childhood Research Quarterly</i>, 27 (3), pp. 387–400.</p>	<p>Type Programme Practice</p>

<p>Name of intervention</p> <p>WORLD (Words of Oral Reading and Language Development).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> </table>	1	2	3	4	5				X	
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<p>Description of aims and objectives</p> <p>Focus on low SES children.</p> <p>Effectiveness for vocabulary development of shared book reading making explicit connections between taught words and concepts embedded in children’s background knowledge.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: prior to intervention, early years practitioners complete a half-day training workshop which introduces them to WORLD and provides materials. The WORLD intervention involves shared book reading with children. Shared book reading includes 18 units (one unit consists of 5 lessons) organised around 2 science and social studies themes. Fifty science and social studies vocabulary words are selected by researchers as target words for developing lexical networks of knowledge. A 5-day instructional routine is followed: days 1 and 3 introduce a new book and 3 vocabulary related concepts; days 2 and 4 repeat the book; and day 5 provides review activities. Eleven storybooks and 13 informational texts were selected for use in the intervention. Researchers selected 68 vocabulary words to develop lexical sets that were visually represented in the books. Early years practitioners teach new words before reading a related book to build children’s background knowledge with picture cards.</p> <p>Modes of delivery: early years practitioners deliver the intervention in small groups of 6 children.</p> <p>Materials: storybooks, informational texts, and picture cards.</p> <p>Location: classroom delivered.</p> <p>Frequency/dosage: 20-minute intervention each day of the week over 18 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: fidelity of implementation scores ranged from 74% to 99%.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 138; control, n = 114.</p> <p>Measurement: PPVT-III, Researcher Developed Receptive Picture Vocabulary Test, The Expressive One-Word Picture Vocabulary Test.</p> <p>Analysis: Restricted Maximum Likelihood.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there were no statistically significant differences between groups.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Outcome: no statistically significant effect of the intervention on standard report measures, but a significant effect was found on proximal, researcher-developed measures of receptive vocabulary.</p>	
<p>References</p> <p>Pollard-Durodola, S. D., Gonzales, J. E, Simmons, D. C, Kwock, O. Taylor, A. B <i>et al.</i> (2011) 'The Effects of an Intensive Shared Book-Reading Intervention for Preschool Children at Risk for Vocabulary Delay', <i>Exceptional Children</i>, 77 (2), pp. 161–83.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Vocabulary intervention for dual language learners (DLL).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Evaluate the efficacy of a vocabulary intervention for bilingual (Spanish–English) preschool children with language impairment.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: two conditions for language of intervention delivery (bilingual or English only) crossed with two conditions of intervention content (vocabulary and mathematics). Vocabulary intervention consisted of a 12-week dialogic reading and hands-on vocabulary instruction of 45 words. For the first 3 weeks, the vocabulary intervention groups read a new book each week; in Week 4, the children reviewed vocabulary from the previous weeks. This cycle repeated during the 12 weeks. Each of the nine intervention units contained five target vocabulary words, for a total of 45 words. Each day of intervention was divided into 25 minutes of vocabulary instruction and 20 minutes of mean length of utterance instruction.</p> <p>Modes of delivery: intervention early years practitioners were either trained graduate students or previous kindergarten or preschool teachers who delivered to small groups (2–5 children).</p> <p>Materials: narrative and expository books.</p> <p>Location: intervention delivered in school.</p> <p>Frequency/dosage: 45 mins per day for 4 days per week during three 4-week cycles, for a total of 48 sessions.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: intervention early years practitioners presented the target vocabulary the correct number of times, per the intervention script, with 93% accuracy, and they followed the scripted intervention procedures 95% of the time.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 202; control, n = 54.</p> <p>Measurement: researcher-developed measures of receptive and expressive vocabulary.</p> <p>Analysis: multilevel growth models.</p> <p>Attrition: sample decreased from 256 to 143 due to families moving or inability to locate the child for testing.</p> <p>Baseline comparison: there were no significant differences between groups on free school meal eligibility or mothers' education, however there were significantly more boys than girls</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>in the language-impaired group.</p> <p>Outcome: the bilingual vocabulary intervention facilitated receptive and expressive Spanish and conceptual vocabulary gains (-0.49) in DLLs with language impairment compared to other intervention groups ($p < 0.05$).</p>	
<p>References</p> <p>Restrepo, M. A., Morgan, G. P. and Thompson, M. S. (2013) 'The efficacy of a vocabulary intervention for dual-language learners with language impairment', <i>Journal of Speech Language and Hearing Research</i>, 56 (2), pp. 748–65.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Parent-implemented enhanced milieu teaching (EMT).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Investigate the extent to which a parent-implemented language intervention improves language skills in toddlers at risk for persistent language impairment (LI) as compared with a group of typically-developing toddlers.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures</p> <p>Modes of delivery</p> <p>Materials</p> <p>Location</p> <p>Frequency/dosage: parents were taught to use EMT strategies at home and in the clinic during 28 individual training sessions (i.e. four workshops and 24 practice sessions). Parents were taught EMT strategies in four phases: (a) setting the foundation for communication, (b) modelling and expanding communication, (c) time delay strategies, and (d) prompting strategies. All children fell into one of two target categories: (a) single word targets (i.e. fewer than 50 words and less than 10 verbs), or (b) early word combinations (i.e. more than 50 words but not combining words regularly).</p>	<p>Focus</p> <p>Language (expression) Language (comprehension)</p> <p>Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 16; LI control, n = 18; TD control, n = 28.</p> <p>Measurement</p> <p>Analysis</p> <p>Attrition</p> <p>Baseline comparison</p> <p>Outcome: There was a statistically significant difference in PLS–4 Total standard scores between LI-treatment and LI- control groups ($p = 0.03$) and in PLS–4 Expressive Communication scores ($p = 0.04$) as well as total number of words ($p = 0.03$).</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										
<p>References</p> <p>Roberts, Megan Y. and Kaiser, Ann P. (2012) 'Assessing the effects of a parent-implemented language intervention for children with language impairments using empirical benchmarks: a pilot study', <i>Journal of Speech Language and Hearing Research</i>, 55 (6), pp. 1,655–70.</p>	<p>Type</p> <p>Programme Practice</p>										



<p>Name of intervention</p> <p>Caregiver-implemented communication intervention.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Test the effects on language outcomes of a caregiver-implemented communication intervention targeting toddlers (24–42 months) at risk for persistent language delays. The primary outcome was the Preschool Language Scale (4th edition).</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: parents were taught to use enhanced milieu teaching strategies at home and in the clinic during 28 individual training sessions (i.e. four 1-hour workshops and 24 practice sessions). There were two components: caregiver instruction and child intervention. First, the caregiver received individual instruction to learn how to use specific language facilitation strategies at home with their toddlers. Second, the caregiver used 6 language facilitation strategies during intervention sessions and throughout the day with their child. The intervention was individualized in 2 ways. First, specific language targets were chosen for each child based on performance during the baseline assessments. All toddlers had either (1) single word targets if they used <50 total words and 10 verbs during baseline, or (2) early word combination targets if they used >50 total words but were not combining words regularly. Second, caregivers were taught the language facilitation strategies in sequential order. Performance was measured and instruction continued to criterion performance levels established for each strategy.</p> <p>Modes of delivery: delivered by the caregiver, one-to-one, with the child. An experienced master’s level special educator or speech language pathologist provided the parent training.</p> <p>Materials: toys, picture book.</p> <p>Location: training delivered in the clinic, and intervention delivered at home.</p> <p>Frequency/dosage: caregivers and children participated in 28 sessions (4 workshops and 24 practice sessions) over 3 months.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: the average level of fidelity was 94% for all parent training components across home and clinic sessions.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 45; control, n = 52.</p> <p>Measurement: Bayley–III: Cognitive, Language and Expressive Communication scales, Preschool Language Scale, Fourth Edition.</p> <p>Analysis: multilevel modelling.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Attrition: unclear.</p> <p>Baseline comparison: groups were equivalent on employment, parent with whom the child lives, and parent age, However, groups were not comparable on income, or education, c2(4, N = 61) = Parents of children with TL and parents in the LI-treatment group had significantly higher average income than parents in the LI control group. LI groups were equivalent on all child characteristics.</p> <p>Outcome: intervention group had significantly better receptive language skills ($p = 0.04$, effect size 0.27), but not broad-based expressive language skills ($p = 0.88$, effect size 0.03) than controls.</p>	
<p>References</p> <p>Roberts, M. Y. and Kaiser, A. P. (2015) 'Early intervention for toddlers with language delays: a randomised controlled trial', <i>Pediatrics</i>, 135 (4), pp. 686–93.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Intensive conversation with an adult.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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<p>Description of aims and objectives</p> <p>Focus on low SES children.</p> <p>Effectiveness of a conversation intervention including linguistically and cognitively complex talk on the expressive vocabulary growth of children.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: three undergraduate students acted as ‘Talking Buddies’. ‘Talking buddies’ attended 4 hours of training in good conversational techniques with children and techniques to foster vocabulary development. Techniques included: letting the child lead with topics, allowing adequate wait time, displaying active listening through facial expressions, using interjections, and joint attention. Talking buddies introduced vocabulary naturally into conversation through vocabulary recasting and the use of rare words. For example, if a child said, ‘she ain’t got no bike’, the talking buddy might respond, ‘I wonder why there aren’t sufficient tricycles’. They also expanded and extended children’s utterances to capture missing grammatical information and elaborate on children’s speech, and asked open-ended questions that emphasized abstract reasoning. On the second day of training, the talking buddies practiced these techniques with different pilot children for 2 hours. They watched the first author model the techniques and then watched each other hold conversations with the pilot children through a one-way mirrored observation room. They critiqued each others’ performance and received ongoing feedback from the first author on their own performance. Once the talking buddies went into the preschool classes, they spoke with the authors weekly to communicate progress regarding the conversations and to address concerns.</p> <p>Modes of delivery: researchers delivered intervention one-to-one.</p> <p>Materials: Sony Digital Audio Recorder.</p> <p>Location: childcare centre.</p> <p>Frequency/dosage: twice weekly for 25 minutes over 10 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: total children, n = 73 (unclear how many in each condition).</p> <p>Measurement: Expressive Vocabulary Test, Codes for the Human Analysis of Transcripts.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Analysis: ANOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: groups were comparable on language ability at pre-test.</p> <p>Outcome: treatment children showed greater growth on expressive vocabulary $hp2 = .06$</p> <p>Treatment children showed greater growth of Diversity $hp2 = .012$ (<i>ns</i>)</p> <p>Expressive vocabulary and Diversity: benefit for children with low initial vocabulary skills $hp2 = .235$ and $hp2 = .276$, but not for children with typical vocabulary skills.</p>	
<p>References</p> <p>Ruston, H. P. and Schwanenflugel, P. J. (2010) 'Effects of a Conversation Intervention on the Expressive Vocabulary Development of Prekindergarten Children', <i>Language, Speech and Hearing Services in Schools</i>, 41 (3), pp. 303–13.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Contextual instruction, analytical instruction, and anchored instruction.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Focus on low SES and EL kindergarteners in urban areas.</p> <p>Teaching picture and oral vocabulary during storybook reading through three different approaches.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: contextual instruction involved discussion about the storybook in which new words were highlighted and the early years practitioner asked questions leading children to think about words and connect new words with background knowledge. In the analytical instruction, time was split between (1) engaging in discussion, and (2) encouraging children to analyse words by comparing and contrasting them and thinking about their application in other contexts. In the anchored instruction, early years practitioners had children (1) discuss new words, (2) analyse words in a more decontextualized way as well as (3) attend to the letters and sounds of new words. All of the curricula followed the same 3-day format. Day 1: the practitioner read the book stopping at target words and asked follow-up questions; Day 2: the teacher read the book without stopping and asked follow-up questions; Day 3: the teacher did not read the book and children retold the story and answered questions about target words.</p> <p>Modes of delivery: early years practitioners delivered intervention in their whole-group classes.</p> <p>Materials: storybook.</p> <p>Location: classroom.</p> <p>Frequency/dosage: intervention delivered for 3 days a week for 6 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: fidelity scores for early years practitioners ranged from 2.83 to 3.33, and the mean was 3.11. Thus, fidelity scores ranged from 2.83 to 3.33, and practitioners differed little in implementing the instructional approaches.</p> <p>Type of evaluation: quasi-experimental design.</p> <p>Sample: contextual, n = 30; analytical, n = 30; anchored, n = 34.</p> <p>Measurement: Test of Oral Language Development P:3, Researcher vocabulary assessment; (RVA).</p> <p>Analysis: ANOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there were no significant differences</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>between groups on language measures at pre-test.</p> <p>Outcome: picture vocabulary: analytical, $d = 1.02$, and anchored, $d = 0.67$ methods better than contextual.</p> <p>Oral vocabulary: analytical, $d = 1.12$ and anchored $d = 0.85$ methods better than contextual.</p> <p>At follow up only oral vocabulary: anchored, $d = 0.94$ and analytical $d = 0.58$ method better than contextual (analytical and contextual not significantly different).</p>	
<p>References</p> <p>Silverman, R. (2007) 'A comparison of three methods of vocabulary instruction during read-alouds in kindergarten', <i>Elementary School Journal</i>, 108 (2), pp. 97–113.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Tier 2 Narrative Intervention.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Examine the efficacy of a Tier 2 narrative intervention for culturally and linguistically diverse preschoolers. Narrative Language Measure (NLM) is the primary outcome measure.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: intervention used procedures of the Story Champs (Spencer and Peterson, 2012b) which contains 12 carefully constructed stories that revolve around childhood themes such as losing an item or getting hurt. In addition to attractive visual materials (e.g. icons and illustrations), core components of Story Champs include flexible but manualized explicit teaching procedures, immediate corrective feedback, and story games to increase active participation. Children receive repeated practice retelling modelled stories and producing their own stories with systematic scaffolding of visual material and supportive prompting from an instructor. It is a six-step intervention: visual materials are systematically removed so children tell the story initially with pictures for support and by the end of the session tell the story without pictures.</p> <p>Modes of delivery: intervention by authors in groups of 4 children.</p> <p>Materials: storybooks.</p> <p>Location: classroom.</p> <p>Frequency/dosage: groups received 18 sessions of 15–20 minutes, twice a week for 9 weeks.</p>	<p>Focus</p> <p>Language (expression) Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: the overall mean fidelity of administration was 96.5% (range = 88%–100%) for retells, and 94.8% (range = 76%–100%) for the personal story elicitation approach.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention group, n = 12; controls, n = 10.</p> <p>Measurement: the Narrative Language Measure, Renfrew Bus Story.</p> <p>Analysis: ANCOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there was no statistical difference between the treatment and control groups at pre-test NLM.</p> <p>Outcome: intervention group showed significant improvement over the control group on narrative retell (telling stories with complete episodes and more information) (p = 0.02, d = 1.05).</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

References	Type
<p>Spencer, T. D., Petersen, D. B. and Adams, J. L. (2015) 'Tier 2 Language Intervention for Diverse Preschoolers: An Early-Stage Randomised Control Group Study Following an Analysis of Response to Intervention', <i>American Journal of Speech-Language Pathology</i>, 24 (4), pp. 619–36.</p> <p>Spencer, T. D. and Petersen, D. B. (2012b) 'Story Champs: A multi-tiered language intervention programme'. Retrieved from http://www.languagedynamicsgroup.com</p>	<p>Programme Practice</p>

<p>Name of intervention</p> <p>Vocabulary intervention in science.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5		X			
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	X										
<p>Description of aims and objectives</p> <p>Focus on low SES and EL (bilingual and monolingual) kindergarteners in urban areas.</p> <p>Teaching science vocabulary explicitly and intentionally versus an implicit comparison.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the intervention curriculum consisted of 16 vocabulary lessons for 20 words. Between 3 and 6 words were taught each week. Academic vocabulary was taught intentionally and explicitly in addition to teacher read-alouds and regular science instruction. Words were reintroduced and reinforced over the 5 weeks, and visuals and engagement strategies were used (e.g. structured think-pair-share) as well as language scaffolds (e.g. sentence frames).</p> <p>Twenty Tier 2 and Tier 3 words taught from the seven expository and three narrative children’s trade books (used for teacher read alouds in the existing science unit) were used during the intervention period. Fifteen of the words were Tier 2 general academic words, and five were Tier 3 academic science words. Of the total 20 words, there were ten verbs, six adjectives, and four nouns. Criteria for choosing the 20 words were shaped by the following variables: (1) the California state standards for kindergarten science, (2) the intervention early years practitioner’s science goals and objectives for his or her students, and (3) the academic words available in the read-aloud texts used in the science unit.</p> <p>Vocabulary lessons followed 7 steps: say the word and write the word, provide definition, explain more fully in the context of the original text, provide examples of the word in other contexts, support students to provide their own sentences, ask short-answer questions, and repeat the word chorally.</p> <p>Modes of delivery: early years practitioners delivered the intervention in their whole group classes.</p> <p>Materials: expository and narrative books.</p> <p>Location: classroom.</p> <p>Frequency/dosage: delivery was 20–25 minutes each day for 5 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: quasi-experimental design.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p>										

<p>Sample: intervention, n = 19; control, n = 20.</p> <p>Measurement: Emergent Science Vocabulary Assessment (ESVA), and the Conceptual Interview on Scientific Understanding (CISU).</p> <p>Analysis: ANOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: results from t-tests of means on the pre-intervention PPVT-III and the TVIP showed that there were no significant differences between the intact classes on either assessment.</p> <p>Outcome: receptive vocab: $n_2 = 0.292$ (differences by condition but not by language).</p>	Indicated—targeted
<p>References</p> <p>Spycher, P. (2009) 'Learning Academic Language through Science in Two Linguistically Diverse Kindergarten Classes', <i>Elementary School Journal</i>, 109(4), pp. 359–79.</p>	<p>Type</p> <p>Programme Practice</p>

<p>Name of intervention</p> <p>Dialogic book-reading.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Examined the feasibility of using a dialogic book-reading intervention for 22–41-month-old bilingual preschool children with expressive vocabulary delays.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures</p> <p>Modes of delivery</p> <p>Materials</p> <p>Location</p> <p>Frequency/dosage: thirty 15-min sessions using dialogic book-reading strategies were provided in each language in the children’s homes—in English by the primary investigator, and in Spanish by the children’s mothers who were trained in the techniques of dialogic book-reading. A list of the target words, along with the books used to target the words for each individual child, was given to the mothers of the children in the intervention group on a weekly basis.</p> <p>The intervention sessions consisted of using each of the target words in the prescribed interaction sequence: establishing joint attention to the picture of a target word, followed by a prompt, and, depending on a child’s response, a model or recast and/or praise. The strategies that were taught to the mothers included first establishing joint attention to a picture of a target word by calling the child by name, pointing to the picture, and verbally inviting the child to look at the picture (‘Come, let’s look at some pictures!’, ‘Look! A bear!’). Once the child’s attention was directed to the referent, the adult would ask a question-prompt. If the child responded to a question-prompt and produced a word, the adults were encouraged to praise the child and expand on the child’s response (e.g. saying ‘a brown bear’ in response to the child’s ‘bear’). If the child remained silent in response to a question-prompt, the adults modelled the correct response (‘a bear’), and either prompted the child to produce the same target using a question-prompt (‘What’s this again?’) or directed their child’s attention to another picture.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension) Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity</p> <p>Type of evaluation: quasi-experimental.</p> <p>Sample intervention, n = 6; control, n = 6.</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>Measurement</p> <p>Analysis</p> <p>Attrition</p> <p>Baseline comparison</p> <p>Outcome: Significant differences between groups in target word learning (larger gains in intervention) for both English ($p = 0.003$, $d = 1.2$) and Spanish ($p = 0.012$, $d = 1.8$). No significant group differences in overall vocabulary learning.</p>	
<p>References</p> <p>Tsybina, I. and Eriks-Brophy, A. (2010) 'Bilingual dialogic book-reading intervention for preschoolers with slow expressive vocabulary development', <i>Journal of Communication Disorders</i>, 43 (2010), pp. 538–56.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Instructional phoneme awareness programme.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Compared with similar peers in a waiting control group, how do 4-year-olds in a preschool setting who receive intensive, early years practitioner-implemented instruction perform on PA measures?</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: the programme was adapted from Gillon and McNeill (2007). Intervention groups received the instruction in their classrooms from their early years practitioner. Weeks 1–4 focused on letter-sound awareness, weeks 5 and 6 focused on phoneme identification, and weeks 7–10 focused on blending and segmenting. Practitioners received an initial training on PA through a lecture-style workshop. This workshop included explanation of PA, its development, techniques for teaching phoneme awareness, and role-play of activities similar to those used in the study. Each week throughout the programme, early years practitioners were provided with weekly lesson/activity plans and materials; they also met weekly in hour-long mentoring sessions with researchers to review weekly lesson plans, activities, materials, and instruction; they were encouraged to ask questions regarding the programme and activities, and to discuss the responses of individual children, as well as their assessment of the success of various activities. Three letters and their corresponding sounds were targeted for two sessions over each of the first 4 weeks of instruction. Initial phoneme identification was the focus for Weeks 5 and 6. Early years practitioners introduced blending and segmenting of compound words during Week 7. During Week 8, the focus was on introducing onset-rime blending and segmenting, a more difficult skill. In these tasks, children identified the first sound(s), or onset, in a word, and segmented the sound(s) from the rime or blended the sound(s) onto its rime. Finally, in Weeks 9 and 10, practitioners introduced phoneme blending and segmenting.</p> <p>Modes of delivery: delivered by the early years practitioner to whole class groups.</p> <p>Materials: toys and picture cards.</p> <p>Location: classroom.</p> <p>Frequency/dosage: the programme was provided for 20 minutes a day, 4 days a week, for 10 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: the research director and project co-ordinator reported 95%–100% compliance with scripted instructions in the implementation of each designated activity.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p>										

<p>Type of evaluation: randomised cross-over trial.</p> <p>Sample: intervention, n = 14; control, n = 10.</p> <p>Measurement: phonological awareness tasks; phoneme identity with and without written word cues, phoneme blending, and phoneme segmentation.</p> <p>Analysis: independent t-tests.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: statistical tests revealed no significant group differences for the CELF-P2 Core Language standard scores and PIPA subtest raw scores at baseline, however there was a significant difference between Group 1 and Group 2 on the GFTA-2 Sounds-in-Words subtest, intervention group scoring higher.</p> <p>Outcome: Group 1, who received the intervention, first showed statistically significant gains for phoneme blending ($p = 0.017$), and approached significance ($p = 0.07$) for letter knowledge. Group 2, who received intervention second, showed statistically significant gains for phoneme blending ($p = 0.057$), and for letter knowledge ($p = 0.041$).</p>	Indicated—targeted
<p>References</p> <p>Tyler, A. A., Osterhouse, H., Wickham, K., Mcnutt, R. and Shao, Y. (2014) 'Effects of explicit teacher-implemented phoneme awareness instruction in 4-year olds', <i>Clinical Linguistics and Phonetics</i>, 28 (7–8), pp. 493–507.</p> <p>Gillon, G. T. and McNeill, B. C. (2007) 'Integrated phonological awareness: An intervention programme for preschool children with speech-language impairment', Christchurch, New Zealand: College of Education, University of Canterbury.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>Connections versus Interactive Book Reading (IBR).</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Focus on EL kindergarteners.</p> <p>Efficacy of Connections (explicit instruction in high-frequency decodable root words) versus Interactive Book Reading to foster vocabulary development.</p>	<p>Age range</p> <p>0–2</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: researchers conducted a day-long initial training for intervention tutors that included an overview of the components for each intervention, modelling how to implement each activity, guided practice in use of the intervention materials, and a review of all intervention materials and recordkeeping procedures. Connections materials included a 12- by 17-inch manual used to present lessons to small groups. One new target word was introduced each day (with two to four related words and cycles of review of previously taught words). Students spelled the word orally once, and decoded/pronounced the word eight times. Six activities were used to teach decoding, spelling, and oral production.</p> <p>Students assigned to the IBR condition received instruction in the same target vocabulary provided in the Connections condition. Instruction was provided in the context of reading aloud a storybook in which the target word is featured at least twice. Most of the storybooks used in this study were those selected earlier for use in the pilot study, and were written at the kindergarten/first grade level. The books varied in the number of oral exposures for the target word, and we provided scripted prompts to ensure students interacted with the word an average of three times during the lesson.</p> <p>Modes of delivery: tutors recruited from the school community delivered the interventions in small groups (unclear how many).</p> <p>Materials: storybooks.</p> <p>Location: delivered outside the classroom.</p> <p>Frequency/dosage: 30 minutes per day, four days per week, for an average of 20 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: audio recording were used to assess fidelity. Across recordings, the observed common component fidelity mean was 95%, and unique component fidelity mean was 95%.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: Connections, n = 163; Interactive Book Reading, n = 161.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Measurement: Peabody Picture Vocabulary Test-III A, experimenter-developed 25-item curriculum based measure (CBM) of target word reading vocabulary. The Woodcock Reading Mastery Test-Revised/Norm Referenced Word Attack subtest, the Wide Range Achievement Test-4.</p> <p>Analysis: multilevel hierarchical modelling.</p> <p>Attrition: cohort 1, 8%; Cohort 2, 11%.</p> <p>Baseline comparison: there was one difference between cohorts on pre-test receptive vocabulary: the second cohort was an estimated 4.90 points lower than the first cohort at pre-test.</p> <p>Outcome: Connections better than IBR for reading vocabulary, $d = 0.64$, and decoding, $d = 0.45$.</p> <p>At follow up, Connections better than IBR for reading vocabulary, $d = 0.29$, and decoding, $d = 0.27$.</p> <p>Increases in root word reading vocabulary did not transfer to general vocabulary knowledge.</p>	
<p>References</p> <p>Vadasy, P. F., Sanders, E. A. and Nelson, R. (2015) 'Effectiveness of Supplemental Kindergarten Vocabulary Instruction for English Learners: A Randomised Study of Immediate and Longer-Term Effects of Two Approaches', <i>Journal of Research on Educational Effectiveness</i>, 8 (4), pp. 490–529.</p>	<p>Type</p> <p>Programme Practice</p>

<p>Name of intervention</p> <p>Book sharing.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Investigated whether an 8-week, one-on-one book-sharing intervention would improve both the literal and inferential language skills of Head Start preschoolers with language impairments.</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: children in the treatment group participated in individual 15-min book-sharing sessions at their Head Start programmes twice per week for 8 weeks with trained graduate and undergraduate research assistants from programmes in communication sciences and disorders. Adults read books and asked both literal and inferential questions about the books using scripts that were embedded throughout the text. Two books by Frank Asch, <i>Mooncake</i> (1987) and <i>Skyfire</i> (1990), were chosen for the intervention because they are similar in length, sentence complexity, and theme. For each of the two books, the senior author of this study developed three sets of 25 scripted questions. For some of the questions, subsequent prompts were scripted to aid the child in responding if she or he could not. Answers to all of the questions were also scripted and were provided in a natural way by the adult if the child could not respond adequately, or at all. The scripts were embedded in the books at the point at which the question was to be asked, and they were in a markedly different font style and size to clearly distinguish them from the text of the book. Some questions related to the text just read, and others were about a picture in the book. The embedding was accomplished by scanning the book pages and then retyping the text so that the scripts could be inserted at the exact point we wished the question to be asked. The printed pages were then laminated and spiral bound into the format of the original book. This ensured that all children in the treatment group received the same questions and scaffolding while also creating book-sharing interactions that were as natural as possible.</p> <p>Modes of delivery: delivered by research assistants one-to-one.</p> <p>Materials: two books by Frank Asch, <i>Mooncake</i> (1987) and <i>Skyfire</i> (1990).</p> <p>Location: Head Start Centre.</p> <p>Frequency/dosage: treatment group received twice-weekly 15-minute sessions for 8 weeks.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p>	<p>Target</p>										

<p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: 30 children. Intervention, n = 15; control, n = 15.</p> <p>Measurement: PPVT–III.</p> <p>Analysis: ANOVA/ANCOVA.</p> <p>Attrition: unclear.</p> <p>Baseline comparison: there was no difference between groups on pre-test standard scores on the PPVT–III.</p> <p>Outcome: PPVT scores—Significant Group x Time interaction ($p = 0.01$, Omega Squared effect size = 0.16). The treatment group made a statistically significant positive change between pre- and post-test ($p = 0.008$), control group non-significant.</p> <p>PLAI scores—a significant Group x Time interaction ($p = 0.03$, Omega squared effect size = 0.13). The treatment group made a statistically significant positive change between pre- and post-test ($p = 0.01$), controls non-significant.</p>	<p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>
<p>References</p> <p>van Kleeck, A., Vander Woude J. and Hammett, L. (2006) 'Fostering literal and inferential language skills in Head Start preschoolers with language impairment using scripted book-sharing discussions', <i>American Journal of Speech-Language Pathology</i>, 15 (1), pp. 85–95.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>You Make The Difference.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Examine the benefits of a six-session parent toddler language promotion programme delivered to toddlers with low spoken vocabulary on screening at 18 months.</p>	<p>Age range</p> <p>0–2 (2 and 3 years)</p> <p>3–5</p> <p>5–6</p>										
<p>Delivery</p> <p>Procedures: the intervention was a modified ‘You Make the Difference’ parent-toddler language promotion programme. No further information provided.</p> <p>Modes of delivery: delivered by parents one-to-one with their child.</p> <p>Materials: unclear.</p> <p>Location: unclear.</p> <p>Frequency/dosage: delivered over six weeks in weekly sessions each lasting two hours.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: of intervention parents, 115 (73%) attended at least one session (mean 4.5 sessions).</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 158; control, n = 143.</p> <p>Measurement: the Preschool Language Scale-4 Expressive Communication and Auditory Comprehension.</p> <p>Analysis: unclear.</p> <p>Attrition: retention was 94% for intervention group and 96% for controls.</p> <p>Baseline comparison: groups were comparable at baseline.</p> <p>Outcome: no significant differences between groups at 2 or 3 years on the Preschool Language Scale-4 Expressive score (p = 0.41, p = 0.21 respectively) or PLS comprehension (p = 0.44, p = 0.90).</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										
<p>References</p> <p>Wake, M., Tobin, S., Girolametto, L., Ukoumunne, O. C., Gold, L., Levickis, P., Sheehan, J., Goldfeld, S. and Reilly, S. (2011) ‘Outcomes of population based language promotion for slow to talk toddlers at ages 2 and 3 years: Let’s Learn Language cluster randomised controlled trial’, <i>BMJ</i>, 343 (7821).</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>										

<p>Name of intervention</p> <p>Language for Learning.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	1	2	3	4	5			X		
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<p>Description of aims and objectives</p> <p>Aimed to determine whether systematic ascertainment of language delay at age 4 years, followed by a 10-month, one-on-one intervention, improves language and related outcomes at age 5 years.</p> <p>A second study reports trial's 6-year outcomes for children with below average language skills on receptive/expressive language (primary), phonology, receptive vocabulary, literacy, and narrative skills (secondary).</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: the intervention was designed to promote narrative skills, vocabulary and grammar, and phonological awareness and preliteracy skills. The format of each session was standardized to cover: (1) brief review of the previous week, (2) activities introduced by the language assistant directed at the child, (3) activities for parent and child together, with support from the language assistant, and (4) activities for home practice. For these 'homework' tasks, parents were asked to practice language-specific and storybook reading targets with their child during the week, and to keep diaries about each of these activities on a weekly basis. Format of each session: Session 1 includes language screen to determine which area to target; Sessions 2–6 involve three activities—phonological awareness/letter knowledge, specific language target, and shared book reading.</p> <p>Modes of delivery: administered by a trained language assistant in the family home.</p> <p>Materials: training manual and books.</p> <p>Location: family home.</p> <p>Frequency/dosage: 18 sessions delivered in 3 blocks of six 1-hour sessions over 6 weeks, with a 6-week break between each block.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension)</p> <p>Vocabulary (expressive)</p> <p>Vocabulary (comprehension)</p> <p>Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: unclear.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention, n = 93; control, n = 91.</p> <p>Measurement: CELF-P2, Comprehensive Test of Phonological Processing, Children's Communication Checklist.</p> <p>Analysis: Linear Regression.</p> <p>Attrition: 91 intervention (92% of 99) and 88 control (87% of 101) children were retained at age 5 years.</p> <p>Baseline comparison: unclear.</p>	<p>Target</p> <p>Universal</p> <p>Selected—targeted</p> <p>Indicated—targeted</p>										

<p>Outcome: weak evidence for a small improvement in expressive language ($p = 0.12$, effect size 0.2), and little evidence for an improvement in receptive language ($P = 0.69$, effect size 0.05). There were sizeable benefits to phonological awareness skills ($P = 0.001$, effect size 0.6) and letter knowledge ($P = 0.03$, effect size 0.3). By age 6, mean language scores had normalized, but there was little evidence of a treatment effect for receptive or expressive language. Of the secondary outcomes, only phonological awareness skills (effect size 0.36) showed benefit.</p>	
<p>References</p> <p>Wake, M., Tobin, S., Levickis, P., Gold, L., Ukoumunne, O.C., Zens, N., Goldfeld, S., Le, H., Law, J. and Reilly S. (2013) 'Randomised trial of a population-based, home-delivered intervention for preschool language delay', <i>Pediatrics</i>, 132 (4), pp. e895–904.</p> <p>Wake, M., Levickis, P., Tobin, S., Gold, L., Ukoumunne, O. C., Goldfeld, S., Zens, N., Le H. N., Law, J. and Reilly, S. 'Two-Year Outcomes of a Population-Based Intervention for Preschool Language Delay: An RCT', <i>Pediatrics</i>, 136 (4), pp. e838–47.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

<p>Name of intervention</p> <p>My Sentence Builder.</p>	<p>Security of the findings</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	1	2	3	4	5	X				
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<p>Description of aims and objectives</p> <p>Explore the impact of a newly designed computer-assisted treatment (C-AT) programme, My Sentence Builder, for the remediation of expressive-grammar deficits in children with specific language impairment (SLI).</p>	<p>Age range</p> <p>0–2 3–5 5–6</p>										
<p>Delivery</p> <p>Procedures: My Sentence Builder has seven colour-coded screens containing images to facilitate production (see Fig. 1): (1) sentence creation, (2) subject selection, (3) verb selection, (4) object selection, (5) sentence selection, (6) animation production containing audio recordings of actions, and (7) grammatical morpheme screen. This programme contained sequences where participants' sentences were broken down to the phrase level (e.g. noun phrase in the subject and object slots and a verb phrase) and then built up into a full sentence containing all necessary elements. The clinician first took pupils to the sentence creation screen where it was highlighted that they were going to 'make up' things about boys or girls. They were then taken to the subject-selection screen and following the appropriate 'wh-' question, they selected a boy or a girl. Once the subject picture was selected, it was placed into a slot located in a sentence box located at the bottom of the screen. The clinician then proceeded to the verb-selection screen. Once the verb was selected, it was placed in the sentence box at the bottom of the screen. Finally, the object of the sentence was selected and placed in the sentence box. Then, the client was prompted to 'put it all together' and following correct production of the sentence was then taken to the animation production screen where an animation, containing audio-recordings of actions, was completed.</p> <p>Modes of delivery: delivered by clinician to individuals.</p> <p>Materials: computer programme, My Sentence Builder.</p> <p>Location: Unclear.</p> <p>Frequency/dosage: participants received ten, 20-minute treatment sessions occurring once weekly.</p>	<p>Focus</p> <p>Language (expression)</p> <p>Language (comprehension) Vocabulary (expressive) Vocabulary (comprehension) Preliteracy skills—phonology</p>										
<p>Level of evidence</p> <p>Programme fidelity: the clinician adhered to an invariant protocol 100% of the time for all intervention sessions.</p> <p>Type of evaluation: randomised controlled trial.</p> <p>Sample: intervention C-AT, n = 11; non-CAT (conventional</p>	<p>Target</p> <p>Universal Selected—targeted Indicated—targeted</p>										

<p>language stimulation), n = 11, control n = 12.</p> <p>Measurement: SPELT-P, CELF-P, PPVT-IIIB, and KBIT-2.</p> <p>Analysis: ANCOVA.</p> <p>Attrition: none.</p> <p>Baseline comparison: unclear.</p> <p>Outcome: the simple group main effect test was significant for pre-intervention Structured Photographic Expressive Language Test-Preschool (SPELT-P) low (1 SD below mean) ($p < 0.001$), medium, (mean) ($p < 0.001$), values on the covariate.</p> <p>C-AT and nC-AT yielded significantly higher SPELT-P scores at post-treatment than the NT condition for both low and medium pre-treatment SPELT-P scores. There were however, no significant differences between C-AT and nC-AT.</p>	
<p>References</p> <p>Washington, K. N., Warr-Leeper, G. and Thomas-Stonell, N. (2011) 'Exploring the outcomes of a novel computer-assisted treatment programme targeting expressive-grammar deficits in preschoolers with SLI', <i>Journal of Communication Disorders</i>, 44 (3), pp. 315–30.</p>	<p>Type</p> <p>Programme</p> <p>Practice</p>

Appendix C: Tables of interventions and outcomes

Table C1: Vocabulary

Focus	Intervention	Programme or practice	Target	N	Delivered by	Duration	Change	Effect Size
Apthorp <i>et al.</i> (2004)	Reading First Elements of Reading: Vocabulary	Programme	Selected	17250 –2250	Educators	Once a week for 2 years	Recognition of words Vocab in listening comprehension	0.85 0.21
Cabel <i>et al.</i> (2011)	Language learning and loving it	Programme	Selected	174	Educators	One year	Print-concept knowledge	
Dockrell, Stuart and King (2010)	Talking time	Programme	Selected	42	Educators	15 mins twice a week for 15 weeks	Verbal comprehension Naming vocabulary Sentence repetition	0.68 0.10 0.15
Garcia <i>et al.</i> (2015)	Parent-Child Interaction Therapy	Programme	Indicated	21	Parents	Unclear	Diversity of different words, total number of words	
Gibbard, Coglan and MacDonald (2004)	Parent-based intervention	Practice	Indicated	12	Parents	6 months: 11 group sessions, each approx. 90 minutes	Estimated vocab, estimated phrase length, RDLS, MLU, PLS expression, PLS comprehension.	
Hadley <i>et al.</i> (2016)	Vocabulary intervention (part of Read, Play, Learn).	Programme	Selected	240	Researcher	2 books read aloud 4 times over 2 months	Concrete nouns Verbs Abstract nouns	1.24 0.89 0.56
Justice <i>et al.</i> (2010)	Print Referencing (part of Sit Together and Read project (STAR))	Practice	Universal	31	Educators	120 read-aloud sessions conducted in classrooms over a 30-week period	Print knowledge	

Motsch and Ulrich (2012)	Lexicon Pirate	Programme	Indicated	26	SLT	15 intervention sessions of the lexical strategy intervention 'Lexicon Pirate'; 13 intervention sessions lasted 30 minutes, carried out three times per week within a period of 5 weeks	Word naming significant Expressive vocabulary test AWST-R non-significant	
Nicolopoulou et al. (2015)	Story telling and story acting practice	Practice	Selected	111	Educator/RA	2 days per week over 2 years	Narrative comprehension Print and word awareness Sound awareness	0.35 0.58 0.74
Neuman and Dwyer (2011)	World of Words (WOW)	Programme	Selected	89	Educators	10–12 mins per day to whole class for 8 weeks	Expressive vocabulary Word labelling Word properties Sorting words taught Sorting words untaught	0.64 0.16 0.84 1.16 0.99
Piasta et al. (2012)	Professional development, conversational responsivity	Programme	Selected	25	Educators	15–20 hrs PD, intervention over 1 year	Total utterances NDW MLU Follow-up NDW	3.18 5.30 4.96 2.75
Pollard-Durodola et al. (2011)	Words of Oral Reading and Language Development (WORLD)	Practice	Selected	138	Educators	20-min sessions 5 days per week for 18 weeks in groups of 5–6	Receptive vocabulary	
Restrepo, Morgan and Thompson (2013)	Vocabulary intervention for dual language learners (DLL).	Practice	Indicated	202	Educators	12-week small groups (2–5 children) 45 mins per day for 4 days per week during three 4-week cycles, for a total of 48 sessions	Receptive and expressive Spanish and conceptual vocabulary gains	-0.49
Roberts and Kaiser (2012)	Parent-implemented Enhanced Milieu Teaching (EMT)	Practice	Indicated	16	Parents	28 individual training sessions (i.e. four workshops and 24 practice sessions)	PLS–4 Total standard scores, PLS–4 Expressive Communication scores and total number of words	
Silverman (2007)	Contextual, analytical and anchored	Practice	Selected	94	Educators	3 days per week for 6 weeks	Picture vocab analytical Picture vocab anchored Oral vocabulary analytical	1.02 0.67 1.12

	instruction						Oral vocab anchored	0.85
Spencer, Petersen, and Adams (2015).	Tier 2 Narrative Intervention	Practice	Indicated	12	SLT RA's	Groups of 4 children; groups received 18 sessions of 15–20 mins twice a week for 9 weeks.	Narrative retell (telling stories with complete episodes and more information)	1.05
Spycher (2009)	Vocabulary intervention in science	Practice	Selected	19	Educators	20–25 min per day over 5 weeks	Receptive vocabulary	0.292
Tsybina and Eriks:Brophy (2010)	Dialogic book-reading	Practice	Indicated		Researcher	Thirty 15-min sessions	Target word learning for both English and Spanish	1.2 1.8
Vadasy, Sanders and Nelson (2015)	Connections	Practice	Selected	163	Educators	30 mins per day, 4 days per week for 20 weeks	Reading vocabulary Decoding	0.64 0.45
Ruston and Schwanenflugel (2010)	Intensive conversation with adult	Practice	Selected	73	Researcher	25 min sessions 2 times per week for 10 weeks	Expressive vocabulary Diversity	0.6 0.12

Table C2: Expression

Washington et al (2011)	My sentence builder	Programme	Indicated	11	SLT	Ten, 20-min treatment sessions occurring once weekly	Structured Photographic Expressive Language Test-Preschool (SPELT-P)	
Justice et al. (2010)	Read it again	Programme	Selected	31	Educators	30 weeks, 1 book per week read aloud 4 times during the week	Grammar Morphology Vocabulary	0.24 0.24 0.17
Marley and Szabo (2010)	Picture books	Practice	Universal	19	Researcher	1 session	Oral recall kindergarten 1st Grade	1.45 0.80
Petersen (2016)	Story Champs	Programme	Selected	42	RA's	2 25-min sessions over 2 days	Causal subordination (TD) Grammar (LI) TD/LI	1.24 1.31 1.21
Justice et al. (2008)	Language Focused Curriculum	Programme	Selected	100	Educators	Teachers completed 3-day training; intervention 1 year	No change	
van Kleek et al. (2006)	Book Sharing	Practice	Indicated	15	Educators	Twice-weekly 15-min sessions	PPVT scores PLAI scores	0.16 0.13
Girolametto, Weitzman and Greenberg (2003)	Learning language and loving it	Programme	Universal	22	Educators	Eight 2.5-hour sessions over 14 weeks	Greater number of utterances Multiword combinations Peer directed utterances	1.3, 1.5 1.2 0.8, 0.9

Table C3: Expression and comprehension

McKean, Phillips, and Thompson (2012)	Family centred practice	Practice	Indicated	10	Parents	Initial therapy 5 weeks, 3-week break, then a further 4-week block of therapy	No change	
de Koning et al. (2004)	Language intervention following screening questionnaire	Practice	Universal	5374	SLT	Screening at 18 and 24 months	Significant; more children in screening group were treated for language problems between age 3, 5 and 9.	
Gallagher and Chiat (2009)	Intensive Speech and Language Therapy	Practice	Indicated	8	SLT	One weekly session lasting for 4 consecutive hours for a total of 24 weeks. Total therapy hours = 96	Comprehension grammar, comprehension vocab, expressive vocabulary, expressive information	1.72 2.24 2.76 1.52
Buschmann et al. (2009)	Heidelberg Parent-based Language Intervention (HPLI)	Programme	Indicated	29	Parents	3-months (Seven 2 h sessions) and one 3 h session 6 months later	Word production and sentence production	0.74, 1.0
Lee and Pring (2016)	Talk Boost	Programme	Selected	111	Educators	Sessions lasted 30 minutes given three times a week for a 10-week period	Grammar, RAPT and Bus Story scores	
Roberts and Kaiser (2015)	Caregiver-implemented communication intervention	Practice	Indicated	45	Parents	28 sessions (4 workshops and 24 practice sessions) over 3 months.	Receptive language skills	0.27
Wake et al. (2011)	You make the difference	Programme	Indicated	158	Parents	Six weeks in weekly sessions each lasting two hours	No change	
Landry et al. (2011)	Teacher development programme	Practice	Universal	1264 yr1, 1328 yr2	Educators	2 years	Vocabulary Complex language Letter, print knowledge Phonological awareness	0.35 0.34 0.34 0.36
Assel et al. (2007)	Lets Begin and Doors to Discovery curriculum	Programme	Universal	96	Educators	One year curriculum delivery	Language comprehension (head start group) Vocabulary (head start) Print knowledge	0.18 0.86 0.68 0.28

							PA	(head start)	0.53 0.26
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Table C4: Preliteracy and phonology

Girolametto, Weitzman & Greenberg (2012)	ABC and Beyond (Hanan)	Programme	Universal	10	Educators	18 hrs of group training and 3 individual coaching sessions with a speech-language pathologist	Print referencing keywords Alphabet letter names Sound awareness	0.217 0.159 0.361
O'Connor et al. (2010)	Ladders to literacy	Practice	Selected	38	Educators	15 min sessions 3 times per week in small groups of 2–3 for year (breaks of 4–5 weeks at times)	Letter naming fluency Phoneme segmentation fluency Nonword fluency	0.25 0.66 0.83
Ouellette and Senechal (2013)	Invented spelling	Practice	Selected	20	Educator	2 sessions per child no longer than 30 minutes	Alphabet knowledge Phonological awareness	0.47 1.16
Koutsoftas, Harmon and Gray (2009)	Tier 2 phonological awareness	Practice	Selected	34	Educators or SLT	Two 20–25 min sessions per week for 6 weeks	Phonological awareness; successful for 71% of the children	1.51
Lonigan et al. (2013)	Emergent literacy intervention	Programme	Indicated	3 gps: n=93, 67, 64	SLT	3–5 children for 10–20 mins a day for 5 days throughout whole school year	Dialogic reading int. on vocab PA int. on PA and blending Letter int. on letter sounds	0.21 0.25 0.29 0.26
Wake et al. (2015)	Language for Learning	Programme	Indicated	89	SLT	18 sessions; 3 blocks of six 1-hour sessions over 6 weeks; 6-week break between each block	Phonological awareness	0.36
Glogowska et al. (2000).	Speech Language Therapy	Practice	Indicated	71	SLT	One-to one sessions routinely offered over 12 months (unclear exact amount contact)	Auditory comprehension; no sig. differences for expressive language, phonology, language development	
Tyler et al. (2014)	Instructional phoneme awareness programme	Programme	Universal	14	Educators	20 mins a day, 4 days a week, for 10 weeks	Phoneme blending and letter knowledge	

Appendix D: Typical development of oral language from birth to five years

Summary: Typical Development of Oral Language from 0–5 Years		
0–18 months	18 months–3 years	3–5 years
<ul style="list-style-type: none"> Vocalizations emerge (growls, squeals, 4–7mths) followed by repeated babble (<i>bababa, dadada</i> 7+ mths, Vihman, 1996). Communicative gestures emerge (7–15mths); eye gaze and holding out toys to share attention (10 mths, Bates, 1976; Cameron-Faulkner <i>et al.</i>, 2015), pointing to direct attention (12 mths, Callaghan <i>et al.</i>, 2011). Variation occurs in when babies reach these milestones, and how much they vocalize/gesture. Children begin to understand words around 6 mths (Bergelson and Swingley, 2012). First words are typically produced between 9–14 mths. There is wide variation in vocabulary at 18 mths (120–367 words understood, 10–200 words produced, Stanford WordBank). 	<ul style="list-style-type: none"> Children begin to understand short sentences (16–26 mths, DfE, 2013). Once children have 50–100 words, they produce short sentences e.g. <i>Want juice</i> (22–36 mths, DfE, 2013), often missing out function words (<i>a, the, I, we</i>) and word endings (<i>that go there</i>). Early sentences are often based on slot-and-frame patterns (e.g. <i>Where X gone?</i>, Lieven <i>et al.</i>, 1997). Children begin to understand more complex utterances (e.g. <i>Put your toys away and then we'll read a book</i>, 2–3 yrs, DfE, 2013) and to produce function words, word endings, and longer sentences. Children make errors (e.g. <i>Me do it, Why you don't like peas?, I runned</i>), especially with forms that they don't often hear (Ambridge <i>et al.</i>, 2015), which are usually a sign of learning (Pine, 2015). 	<ul style="list-style-type: none"> Children's language sounds more adult-like in sentence structure and the topics they can talk about (e.g. past events, causes and consequences, predictions and explanations, 30–50 mths, DfE, 2013). By 5 yrs, children use different connectives to produce complex sentences (e.g. <i>and, but, if, because, when</i>, Diessel, 2004). Although most children now miss out fewer words and word endings, other errors occur, e.g. in matching words to sentence structures (<i>he disappeared the rabbit</i>, to mean <i>he made the rabbit disappear</i>, Bowerman, 1988), and judging when and how to use pronouns (<i>it, he</i>) and fuller descriptions (<i>the ball, that man</i>) appropriately (Matthews <i>et al.</i>, 2006; Theakston, 2012).
How to Support Learning		
<ul style="list-style-type: none"> Respond to vocalizations with smiles and eye contact (Hsu <i>et al.</i>, 2001; Goldstein <i>et al.</i>, 2003). Follow-in on the child's focus of interest, longer interactions may encourage more gesture (Salomo and Liszkowski, 2013; Cameron-Faulkner <i>et al.</i>, 2015). Quantity of talk matters for early vocabulary learning (Hart and Risley, 1995; Cartmill <i>et al.</i>, 2013), as does following-in on the child's focus of interest (McGillion <i>et al.</i>, 2013). 	<ul style="list-style-type: none"> Quantity and quality of talk matters for learning vocabulary and grammatical and morphological rules (Bates, <i>et al.</i>, 1988; Ambridge <i>et al.</i>, 2015). Use rare/infrequent words and different sentence structures, and expand on what the child says to support learning of word meanings (Rowe, 2012; Naigles and Hoff-Ginsberg, 1998; Taumoepeau, 2016). Daily routines provide ideal contexts for modelling language in predictable ways allowing children to learn slot-and-frame patterns (Lieven <i>et al.</i>, 1997). 	<ul style="list-style-type: none"> Decontextualised talk about pretend play, people and events not present in the immediate context supports word learning (Rowe, 2012) and narrative development (Demir <i>et al.</i>, 2015). Using complex sentences supports children's comprehension and production of complex sentences (Huttenlocher <i>et al.</i>, 2002; Theakston, 2015).

Warning Signs (taken from the Hanen Centre's website—see main text for alternative sources)

<ul style="list-style-type: none"> • No babble with changes in the loudness and tone of voice (e.g. <i>dadadadadada</i>) by 12 mths. • No simple gestures (e.g. headshake) by 12 mths. • Failure to respond to any words (e.g. child's name) by 12 mths, or to produce any words by 15 mths. 	<ul style="list-style-type: none"> • No understanding of simple instructions (e.g. <i>don't touch</i>) by 18 mths or production of 2-word combinations by 24 mths. • No adult grammar at all (e.g. <i>two babies, doggie sleeping</i>) by 30 mths. 	<ul style="list-style-type: none"> • No questions or full sentences (e.g. <i>I don't want that, my truck is broken</i>) by 36 mths. • Unable to tell a simple story by 4–5 yrs.
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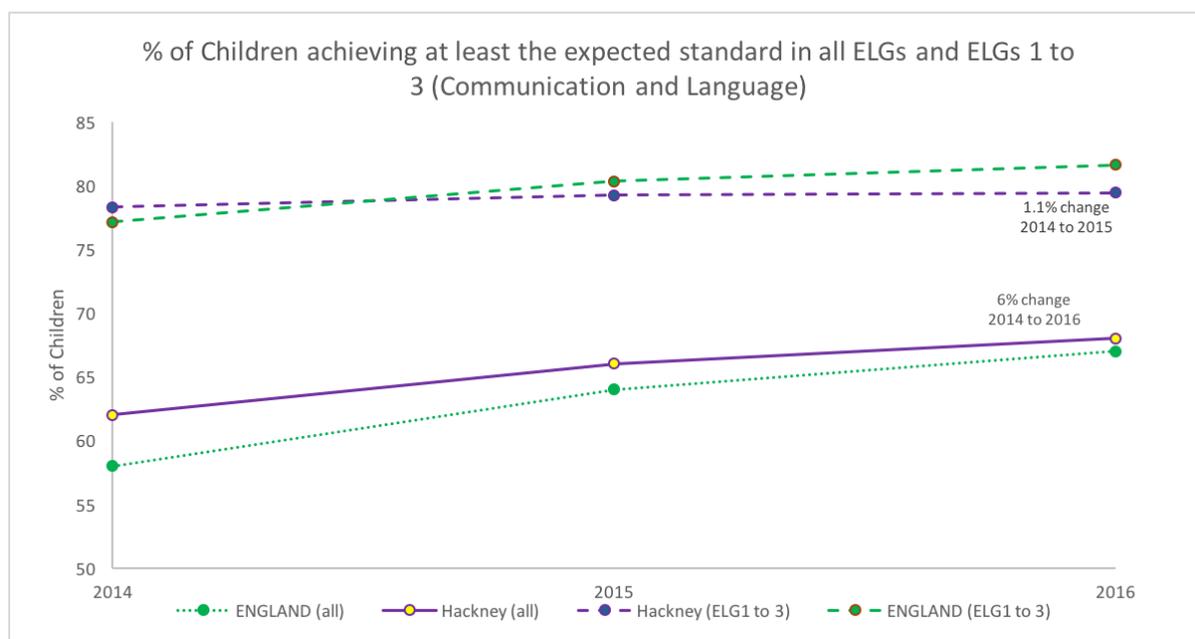
Appendix E: Local authority case studies

Case study 1: London borough—Hackney

The London Borough of Hackney is the most disadvantaged of the five examples used in this section of the report. The Borough is ranked 11 out of 326 authorities in England using the IMD2015 dataset, 10 out of 326 authorities using the IDACI, and 8th out of 326 authorities for the rank of LSOAs among the most disadvantaged 10% nationally.

Progress of children’s speech, language, and communication (SLC), as measured by the Early Years Foundation Stage Profile (EYFSP), was reviewed over the 2014–2016 period and is presented in Figure 5.3 below. On average in England, there is a strong negative correlation between social disadvantage and the percentage of children achieving expected levels on the EYFSP across all areas of learning, and specifically for the Early Learning Goals 1–3, which relate to SLC. Hackney is a disadvantaged local authority, so one might expect it to perform below the English mean on this metric.

Figure 5.1 Progress for the ELG 1-3 for Hackney compared with England 2014 - 2016



Local organisational structures

Commissioners

- The Learning Trust (on behalf of London Borough of Hackney). The Hackney Learning Trust is now a department within Hackney Council responsible for children's centres, schools, early years, and adult education. In the period 2002–2012, it was the first private, not-for-profit trust to be established to perform the Council's entire education function, and this legacy means that structures are not typical of a local authority, even in the current configuration.
- City and Hackney Clinical Commissioning Group (CCG).
- All but one mainstream school commission additional SLT support to enhance the core offer to their children.

Specialist providers

- Homerton Hospital NHS Foundation Trust: Health Visitors, some SLTs (see below).
- Hackney Learning Trust: specialist advisory teachers, portage workers (a home-visiting service for children with additional needs that focuses on family support, structured teaching and child-led play),¹⁴ Early Years consultants, some SLTs (see below).
- The Integrated SLT service for Hackney and the City: consists of speech and language therapists working as one team but employed variously by either Homerton Hospital NHS Foundation Trust or the Learning Trust.

Wider workforce

- Children's centres, nursery classes, private, voluntary and independent early years settings.

The commissioning relationships in Hackney are relatively simple in that there is one clinical commissioning group and one local authority covering the area. The speech and language therapy service is an integrated service across Homerton Hospital NHS Foundation Trust and the Learning Trust with therapists being employed in either organisation. Despite this longstanding joint delivery model and aligned budgets, there is no formal joint commissioning in place for speech and language services in Hackney.

Provision

Support for children and young people with SLCN was the subject of an external review in 2002 which made a number of recommendations for an integrated provision across the then health and education teams.¹⁵ Subsequent to this review, a complete service redesign was conducted which led to transformational change towards a tiered model of service delivery across universal, targeted, and specialist provision. Other changes included access to services for children under four through 'drop-in' sessions (Talking-walkin) in children's centres, and a move away from clinic-based support towards integrated locality teams operating in settings and schools wherever possible.¹⁶ The service has continued to evolve under the guidance of local leaders, several of whom have contributed to national guidance.^{17,18,19}

¹⁴ <https://www.portage.org.uk>

¹⁵ Law, J., Gascoigne, M. and Garrett, Z. (2002) 'Review of provision for children with SLCN in Hackney and the City of London' (unpublished report).

¹⁶ Gascoigne, M. (2003) Children's Integrated Speech and Language Therapy Service for Hackney and the City. Unpublished paper to the Boards of the Learning Trust and City and Hackney PCT

¹⁷ Parsons, S and Branagan, A. (2005) Language for Thinking. Speechmark

¹⁸ Parsons, S and Branagan, A. (2010) Word Aware and (2016) Word Aware 2 for Early Years. Speechmark

¹⁹ Burns, A. (2008) contributing author to Every Child a Talker

The review of local provision for this report shows a range of provisions which evidence collaboration across health, education and the early years systems. There is a website—‘Get Hackney Talking’²⁰—that provides information and resources to parents and professionals as well as providing a focus for a community based approach to improving language and communication skills. Pupil Premium is used by all but one of the mainstream schools to enhance their local offer through commissioning additional support from the integrated speech, language and communication teams. ‘Launchpad for Language’ is an online portal which facilitates early years settings to select training and support, including screening and evaluation of the early years environment. There is also social media presence with Facebook and twitter accounts accessible to parents and professionals.

The Local Offer

The Local Offer for London Borough of Hackney is published at <http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/home.page>. There is information for parents and carers, and specific information is categorised by age, 0–4 years, 4–10 years, 11–14 years, 14–18 years, and 18–25 years. It is also possible to search using a key word. Provision in the Local Offer database has been allocated to universal, targeted, or specialist levels. The database returns both Hackney based Local Offer information and also relevant external links. Search on ‘speech and language’ generates all the relevant provisions available with links through to the detailed pages:

<http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/results.page?qt=speech+and+language&andterm=andlocalofferchannel=0andsorttype=relevanceandlocalofferagebands=andresulttype=>

Mapping of provision

The mapping was completed based on documentation provided and reviewed, in addition, there were interviews with the speech and language therapy lead for early years and the local authority lead for early years provision. Footnote links have been provided which link to the source material and relevant evidence-base where appropriate.

²⁰ <http://gethackneytalking.co.uk/educational-professionals/launchpad-for-language/>

Table 5:2: Mapping of provision for children to support SLC and those with SLCN in Hackney

■ = Programme ■ = Practice

	Universal Offer	Targeted Support	Specialist Support
Family Support	Health visitor screening as part of Healthy Child programme. ²¹	<u>Local Offer</u> through Learning Trust website. ²²	Early Help Key workers support families to access different professionals.
	Early years settings share resource ideas with parents so they can support speech and language development at home.	Settings share resource ideas with parents to support children with identified speech and language needs at home (e.g. Makaton signs).	Portage: home-based support for preschool children with additional needs. ²³
	Training for families available through Learning Trust and children's centres, including supporting communication development. ^{24 25}	Training for families available through the Learning Trust and children's centres around supporting communication development for children with identified need.	Autistic Spectrum Disorder programme: the programme provided follows the Early Bird programme developed by the National Autistic Society. ^{26, 27}
	'Talking Walk-in' ²⁸ advice, and advice sheets to support SLC, are available on <u>get hackney talking</u> website. ²⁹ The 'Talking Walk-in' sessions are	Advice sheets to support SLC available on <u>get hackney talking</u> website.	Advice sheets to support SLC available on <u>get hackney talking</u> website.

²¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/429740/150520RapidReviewHealthyChildProg_UPDATE_poisons_final.pdf

²² <http://www.hackneylocaloffer.co.uk>

²³ <http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/service.page?id=CZk9tyF5qIQandlocalofferchannel=0>

²⁴ <http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/service.page?id=50AxISHTT8andlocalofferchannel=0>

²⁵ <https://www.learningtrust.co.uk/schools/Documents/Woodberry%20Down%20and%20Hillside%20Timetable.pdf>

²⁶ <http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/service.page?id=b8g2WqfbX2sandlocalofferchannel=0>

²⁷ <http://www.autism.org.uk/earlybird>

²⁸ <http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/service.page?id=eHbqoVLfQS8>

²⁹ http://gethackneytalking.co.uk/fact_sheet/?audience=parentsandage=early-years-0-5-years

	Universal Offer	Targeted Support	Specialist Support
	regular and held in different locations within the Borough. They provide access to advice and information from a speech and language therapist and initial assessment.		
Environment	Support programme (Launchpad for Language) for settings including a communication friendly audit: ³⁰ an audit of how well-adapted the environment is to support SLC development.		
	Setting-development support as part of Launchpad for Language. This is a tailored support package devised with the setting to help them to implement enhancements to the environment that support development of SLC skills.	Setting-development support as part of Launchpad for Language. Development support at a targeted and specialist level is a tailored support package devised with the setting to help them to implement enhancements to the environment that support SLC skills for those who have additional needs in this respect.	Setting-development support as part of Launchpad for Language.
Workforce	Fortnightly multi-agency meetings in each children's centre area.	Range of training ³¹ around supporting SLC and SLCN available through Launchpad for Language. ³²	SEN worker in setting attends relevant training to support SLCN, e.g. Makaton. ^{33 34}

³⁰ http://gethackneytalking.co.uk/wp-content/uploads/2016/02/A3Poster_v2.pdf

³¹ <https://www.learningtrust.co.uk/TPG/childminders/Documents/Childminders%20Training%20Brochure%202015-16.pdf>

³² <http://gethackneytalking.co.uk/educational-professionals/launchpad-for-language/>

³³ <http://gethackneytalking.co.uk/healthcare-professionals/training/>

³⁴ <https://www.makaton.org/aboutMakaton/research>

	Universal Offer	Targeted Support	Specialist Support
	Centralised training support through Learning Trust which includes SLC skills support training as part of <u>Launchpad for Language</u> . ³⁵	SLT models strategies and interventions to setting staff to develop their skills and confidence.	Range of training around supporting specialist SLCN available through Launchpad for Language.
			SLT models strategies and interventions to setting staff to develop their skills and confidence in supporting children with specialist SLCN.
Identification	Health Visitor <u>Ages and Stages Questionnaire</u> ³⁶ (ASQ) assessment including identifying any SLCN.	Health visitor follow-up where concerns have been raised and additional screen or referral if required.	Early Years Complex Needs (EYCN) Eating and Drinking Skills (EDS) assessment. ³⁷
	<u>WELLCOM</u> ³⁸ —universal screen in schools which buy in Launchpad for Language.		EYCN Dynamic Assessment Communication: a specialist assessment process that focuses on what skills are demonstrated as well as the learning potential—so a process as opposed to a set of test materials. ³⁹
	Open referral 'Talking Walk-in' ⁴⁰ —7 drop-in sessions each month across Hackney in a range of locations.		

³⁵ <http://gethackneytalking.co.uk/educational-professionals/launchpad-for-language/>

³⁶ <http://agesandstages.com>

³⁷ <http://www.homerton.nhs.uk/our-services/services-a-z/c/childrens-services-in-the-community/childrens-speech-and-language-therapy-service/>

³⁸ <https://www.gl-assessment.co.uk/products/wellcomm>

³⁹ www.asha.org/practice/multicultural/issues/Dynamic-Assessment/

⁴⁰ <http://www.hackneylocaloffer.co.uk/kb5/hackney/localoffer/service.page?id=eHbqoVLfQS8>

	Universal Offer	Targeted Support	Specialist Support
Intervention		<p>Group to support under 5s with delayed communication skills.</p> <p>Parents learn strategies to encourage communication development by reflecting on their interactions using video footage.</p> <p>This describes a form of parent-child interaction intervention.</p>	Language group: this equates to 'speech and language therapy' as identified in Chapter 4.
		<p>Three distinct but linked intervention packages targeting children in the EY felt to need a social communication approach. The packages have been locally developed using the language of the SCERTS® curriculum:⁴¹</p> <p>*'Social communication'</p> <p>*'learning my language'</p> <p>*'1:1 language'.</p>	Speech sound groups: this equates to 'speech and language therapy' as identified in Chapter 4.
		<p>Advice re fluency (stammering).</p> <p>At a targeted level, this will be to provide the first model of fluency intervention starting with advice and guidance.</p>	
		Targeted level fluency intervention: Palin PCI. ⁴²	Specialist level fluency intervention: Lidcombe. ⁴³

⁴¹ http://www.scerts.com/index.php?option=com_contentandview=articleandid=10andItemid=2

⁴² <http://www.stammeringcentre.org/files/summary%20Palin%20Parent%20Child%20Interaction.pdf>

⁴³ <http://www.lidcombeprogram.org/families-care-givers/parent-friendly-research/>

	Universal Offer	Targeted Support	Specialist Support
		<p>Parents are supported through video feedback to identify strategies that make a positive difference to their child's fluency (stammering).</p> <p>This describes a form of parent-child interaction intervention.</p>	Specific programme for stammering.
		Programme of targeted intervention to be delivered by the wider workforce under the guidance of the SLT for children who are part of the Early Years Complex Needs caseload.	One-to-one voice therapy.
		Programme of monitoring by the SLT for children who are part of the Early Years Complex Needs caseload.	Direct intervention block for children who are part of the Early Years Complex Needs caseload.
			<p>Specific child-based support.⁴⁴</p> <p>SLT provides input to Individual Education Plan meetings to ensure communication targets and strategies are embedded within the child's package of support.</p>
			<p>Specific child-based monitoring.</p> <p>Assessment and advice, and may involve attending IEP meetings and collaborative working to ensure child receives a holistic package of care.</p>

⁴⁴ <http://gethackneytalking.co.uk/our-team/what-we-do/>

Discussion

The provision in Hackney is organised across the universal, targeted, and specialist levels and there is evidence of provision in all five strand areas. Notably, the provision described is integrated into the Local Offer and can be accessed via the Local Offer. The services have been operating across universal, targeted and specialist levels since the launch of the service model in 2003 following the earlier review in 2002. The local specialist teams support the development of SLC in early years provisions and settings in Hackney through the support that can be accessed via the Launchpad for Language platform as well as through regular liaison and working onsite with early years colleagues. Families of children with a defined SLC need access initial advice and assessment through 'Talking Walk-in' sessions located at children's centres, and then progress to interventions at either targeted or specialist levels as appropriate. The current access time is six weeks from referral to intervention—significantly less than in most areas of the country—and well within the government's 18-week target. A range of targeted interventions is available in children's centres; children's centre staff will have received training to deliver such interventions as part of their targeted support.

Of the 44 provisions reported by the services in Hackney, only seven (16%) were 'programmes' as defined in Chapter 4. The majority of the local provision would be described as 'practices' with local practitioners devising packages of provision rather than implementing externally produced programmes. The speech and language therapy and specialist early years services have developed local interventions the content of which might well be similar to 'off the shelf' programmes available for purchase, and some of these are published nationally. This has been a deliberate strategy to maximise the collaboration and skills sharing between the specialist and wider workforce in Hackney through co-delivery and co-production.

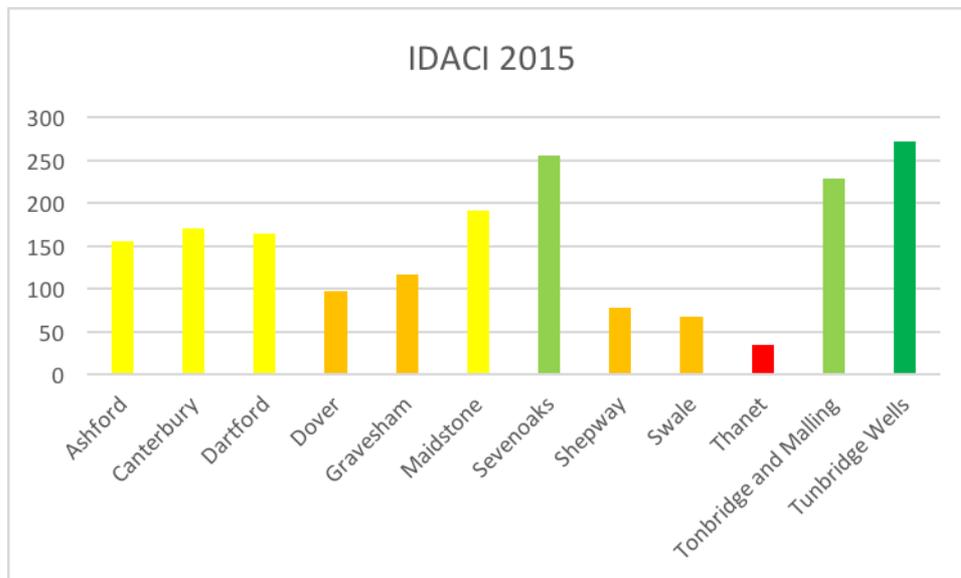
The majority of the interventions evaluated in Chapter 4 do not appear in the mapping for Hackney. There are examples of provisions in the mapping tool that describe 'speech and language therapy', including examples of intensive work with children, but none are replicable interventions such as those described in Chapter 4 that could be given an evidence rating. Similarly, there are examples of parent-child interaction interventions described in the provisions for Hackney, but the local services do not use any of the comparable published programmes as described in Chapter 4 such as 'Learning Language and Loving It' (a Hanen programme). Conversely, some of the programmes that the services cite are not identified in Chapter 4. Two areas are particularly of note in this respect: programmes for children with Autistic Spectrum Disorder, such as the Early Bird and Cygnet programmes, and programmes for children who have difficulties with fluent speech, such as the Palin Parent-Child Interaction Programme and the Lidcombe Programme (other parent-child programmes are also included).

Case study 2: District within a South-East shire county—Thanet

Thanet is a local government district in Kent, in the South East of England. Thanet has high levels of disadvantage measured on a range of indicators and is the only district in Kent to fall within the lowest quintile of the IDACI. Thanet is ranked 28th out of 326 authorities in England using the IMD2015 dataset, 34th out of 326 authorities using the IDACI, and 35th out of 326 authorities for the rank of LSOAs among the most disadvantaged 10% nationally.

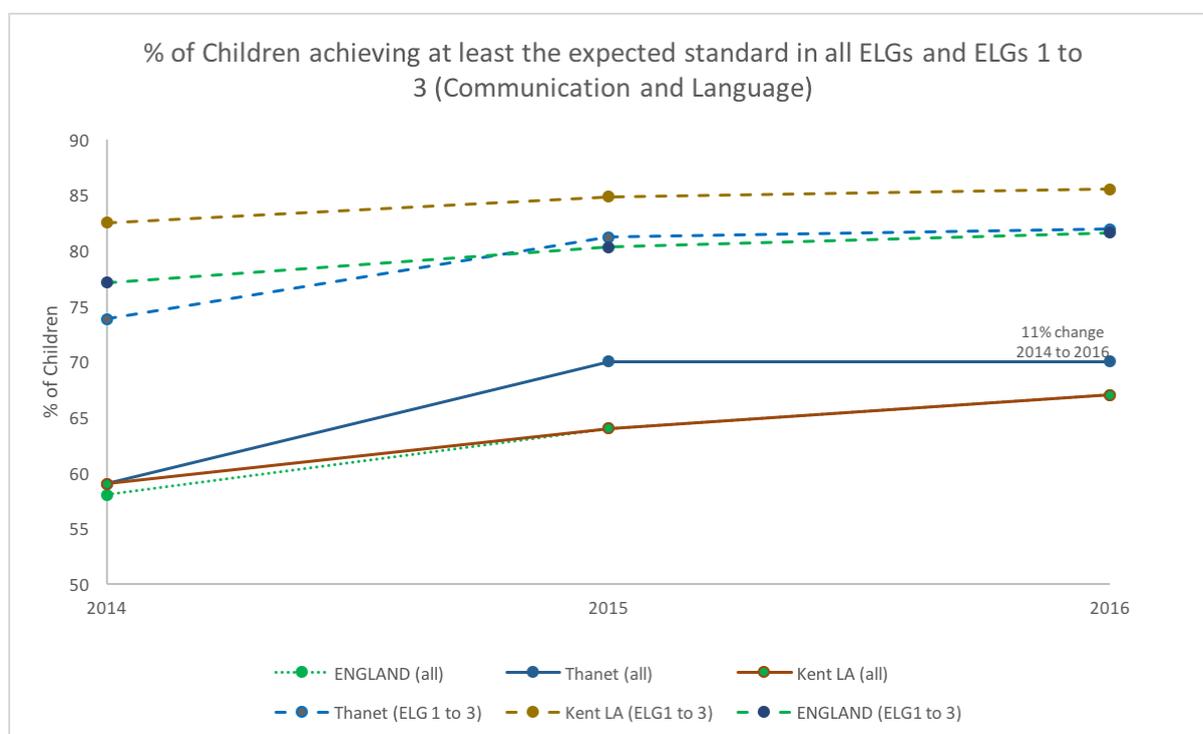
Kent County Council has overall responsibility for education, early years, and SEND across the whole county. In order to set Thanet in context locally, Figure 5.4 shows the relative IDACI 2015 rankings for the districts within Kent County Council's remit.

Figure 5.2: Showing the IDACI ranks for the districts within Kent. Red indicates that the district is among the most disadvantaged 20% in England; dark green indicates the least disadvantaged 20%



Progress of children's SLC, as measured by the Early Years Foundation Stage Profile (EYFSP), was reviewed over the period 2014–2016 and is presented in Figure 5.5 below. The percentage of children in Kent achieving the expected level across all the areas of development measured by the EYFSP is broadly in line with the mean for England. However, looking specifically at ELG 1–3, the percentage of children in Kent achieving the expected level is a consistent 4–5% higher than the England average. Thanet is remarkable both for a relatively low starting point in 2014—the percentage of children achieving the expected level is 8% below the average for Kent—and for the improvement made in closing this gap, demonstrated by its reduction to only 4% in 2015.

Figure 5.3: Progress for the ELG 1–3 for Thanet and Kent for 2014–2016 compared with England



Local organisational structures

The commissioning landscape in Kent is complex. Kent County Council commissions significant support for SLCN via specially resourced provisions and specialist teaching services, but also by funding over 25% of the speech and language therapy provision across the county. There is currently a working group seeking to agree a joint commissioning specification for all aspects of support for SLCN between Kent County Council and the seven CCGs that operate across Kent. One of these CCGs is NHS Thanet, which has responsibility for commissioning health provision in the district.

For Thanet specifically, key players are:

Commissioners

- Kent County Council.
- NHS Thanet.
- Some commissioning of enhanced support from schools, but no definitive data.

Specialist Providers

- Kent Community NHS Foundation Trust (speech and language therapists).
- Kent County Council (specialist advisory teachers, portage workers, early years consultants, Kent Communication Aids Team).

Wider workforce

- Children's centres, nursery classes, private, voluntary, and independent early years settings.

The Local Offer

The Local Offer for Kent County Council may be found at <http://www.kent.gov.uk/education-and-children/special-educational-needs>.

The offer provides information for schools and parents, such as contact info for SEND including SEND teams, SEND transport, support groups, and complaints, as well as information for parents

about how to request assessment, coverage of EHC plans including assessment, issuing of EHC plans, and help for those unhappy with the plan. The Local Offer provides support for transition into adulthood, including employment, housing, and local activities and the SEND strategy is clearly accessible.

However, there is very little explicit mention of provisions to support SLCN and many of the initiatives for all children to develop language and communication are not highlighted. The Local Offer does not reflect the much more comprehensive support reported via the mapping tool at universal level. There are no easy links to the speech and language therapy services or specialist teaching services. Much useful information that could be included in the Local Offer pages is only available on the KELSI site,⁴⁵ which is for staff in Kent, and this is a missed opportunity for parents.

Mapping of provision

Provision for supporting language and communication in the early years involves practitioners from Kent County Council including health visitor consultants, early years consultants, as well as speech and language therapists from Kent Community NHS Foundation Trust. There are multi-disciplinary systems and support for settings to identify children who are vulnerable in respect of language and communication development (LIFT). Kent County Council has a clearly-articulated SEND and Inclusion strategy,^{46 47} and this area is regarded as a high priority as evidenced by the Lead Cabinet Member for Children within local government making this a priority and chairing the joint commissioning working group.

The priority given to intervening in the early years to support language and communication development is partly driven by the heavy burden on the SEND budget of funding additional support at school age (while recognising that many of the children and young people that go on to have long term SEND will not have their needs resolved by universal and targeted strategies alone). Linked to this, there has been long-term investment in universal and in particular targeted strategies in settings, nurseries, and schools. Specialist teaching services are well regarded and relatively well resourced.

A needs assessment has recently been concluded and a joint specification based on the Balanced System® is in the process of being approved.⁴⁸ The aim is to achieve equitable, needs-based, outcome-focused provision from health and education services that impact on language and communication. The needs assessment has provided a rationale for a rebalancing of resource towards Thanet and potentially away from more affluent areas such as Tunbridge Wells, however the different CCGs for these areas makes the rebalancing of health funding challenging, whereas Kent County Council, including Public Health, has greater flexibility to allow resource to follow need. Currently, across Kent, speech and language services are provided by three different providers working to different models and it is hoped that this will be addressed by the single specification for all providers.

⁴⁵ <http://www.kelsi.org.uk>

⁴⁶ https://www.kent.gov.uk/data/assets/pdf_file/0012/13323/Strategy-children-young-people-SEN-Disabilities.pdf

⁴⁷ <http://www.kelsi.org.uk/support-for-children-and-young-people/early-years-and-childcare/equality-and-inclusion/special-educational-needs-for-early-years>

⁴⁸ <http://www.kelsi.org.uk/special-education-needs/special-educational-needs/sen-support/the-balanced-system>

Table 5.3 Mapping of provision for children to support SLC and those with SLCN in Thanet

 = Programme  = Practice

	Universal Offer	Targeted Support	Specialist Support
Family Support	Health visitor screening as part of Healthy Child programme. ⁴⁹	<u>Local Offer</u> ⁵⁰ through Kent County Council website.	Portage home visits. ⁵¹
	'Sign and say' sessions. ^{52,53} for parents and babies where simple gestures are taught to accompany rhymes and songs.	Exploring Communication: 2 sessions to support parents to understand children's communication development.	Playing and learning sessions targeted group for children who have Social Communication Difficulties or Autistic Spectrum Disorder (ASD). ⁵⁴ Sessions offer a playgroup experience with specialist staff on hand to facilitate play skills development and provide advice to parents.
	Parent meetings with settings.	Pre School staff liaise with parent/carer and explain concerns.	Portage ⁵⁵ Drop in and Play Short break Group. Two hourly group to offer a quality play experience for preschool children identified with additional needs.

⁴⁹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/554499/Service_specification_0-19_commissioning_guide_1.pdf

⁵⁰ <http://www.kent.gov.uk/education-and-children/special-educational-needs>

⁵¹ <http://www.kelsi.org.uk/special-education-needs/special-educational-needs/kent-portage>

⁵² <http://www.singandsign.com/classes/classes-near-you/thanet,-herne-bay,-whitstable/news/sing-and-sign---baby-signing-classes-in-thanet-and-east-kent>

⁵³ <http://search3.openobjects.com/kb5/kent/directory/service.page?id=jHMTsmeSFSM>

⁵⁴ <http://www.kentautistic.com/what-we-do/family-support-services/>

⁵⁵ <http://www.portage.org.uk/about/npa-literature>

	Universal Offer	Targeted Support	Specialist Support
	SLC information sessions. ⁵⁶	Little Talkers group run at Millmead Children Centre in Thanet to provide support to parents of preschool children with an identified SLCN. Early vocabulary development group with the aim of supporting parents to develop vocabulary with their child.	Preschool specific language impairment service. ⁵⁷
	Parent and Toddler, Play and Stay, music and movement—activities available as part of universal services in children’s centres and early years settings.		Parent/Family-focused sessions lead by the Therapy Assistant Practitioners (TAPs). Training sessions for parents on specific software being issued to the CYP. ⁵⁸ This is for specific children with communication aids modelled on language development groups for parents.
	‘Ready for School’ groups run by Children’s Centres across the County to prepare preschool children and their parents for school attendance, including SLC development.		Early Bird course for children with ASD. ^{59 60}
	‘Chatter Matters’ course for parents of preschool children providing information about language and vocabulary development and strategies		

⁵⁶ <https://www.kentcht.nhs.uk/wp-content/uploads/2016/03/Childrens-SLT-pathway.pdf>

⁵⁷ <https://www.kentcht.nhs.uk/service/childrens-speech-and-language-therapy/>

⁵⁸ <https://www.kentcht.nhs.uk/service/childrens-speech-and-language-therapy/>

⁵⁹ <http://www.kent.gov.uk/social-care-and-health/health/autism-and-aspergers#>

⁶⁰ <http://www.autism.org.uk/earlybird>

	Universal Offer	Targeted Support	Specialist Support
	to support these at home.		
Environment		Now/next boards, visual timetables, choice boards: these are practices that specialist teachers or SLTs might recommend for use in nursery classes or early years settings.	Workstation, visual schedule, individual visual timetable, communication cues on key fob: practices that specialist teachers or SLTs might recommend for use in nursery classes or early years settings.
			Communication and Assistive Technology (CAT) ⁶¹ staff (occupational therapists, SEN teachers, SLTs, Therapy Assistant Practitioners) support local therapy staff and school staff in making the relevant adaptations to make the school and home more accessible for the children and young people.
Workforce	Kent Education Learning and Skills Information site <u>KELSI</u> . ⁶²	'Sign and Say' sessions to preschool staff in the district to learn and use a range of basic Makaton ⁶³ signs to support children with and without SLCN.	Delivery of National Portage Association ⁶⁴ Portage 3-day workshop to settings and Children Centres, giving priority to settings that support children receiving Portage.
	'Prime Importance of Communication': Equality and Inclusion Service.	'Communication in a box'.	Support for EY staff to develop knowledge and skills.

⁶¹ <http://www.kelsi.org.uk/support-for-children-and-young-people/support-for-schools/kent-and-medway-communication-and-assistive-technology-service>

⁶² <http://www.kelsi.org.uk/news-and-events/events>

⁶³ <https://www.makaton.org/aboutMakaton/research>

⁶⁴ <http://www.kelsi.org.uk/special-education-needs/special-educational-needs/kent-portage>

	Universal Offer	Targeted Support	Specialist Support
		Narrative Nursery Training.	Integrated Therapy and Care Co-ordinated service (ITACC) ⁶⁵ SLT training in setting.
Identification	Health Visitor <u>Ages and Stages Questionnaire</u> ⁶⁶ (ASQ) assessment including identifying any SLCN.	Early Years (EY) local inclusion forum team ⁶⁷ (LIFT): preschool staff can bring individual children for discussion.	Settings make referrals to early years local inclusion forum team (LIFT) for individual children receiving SEN support. This may result in specialist support.
	All families who are registered with the Children's Centre are offered an appointment with SLTA for screening of early SLCN.	Guidance describing normal development in early speech and language acquisition is available from the local NHS service and aid identification of children who may require targeted or specialist support and should be referred. ⁶⁸	SLT staff in all districts provide observation and assessment of children referred or identified through liaison visits.
	Settings use EYFS tracker ⁶⁹ to monitor children's progress including SLCN.	Glendonald Auditory Screening Procedure ⁷⁰ (GASP): specific assessment of receptive language	
Intervention	Signing and symbols introduced to settings and nurseries: universal training and resources provided so that	Targeted SLT group interventions: practices that are designed by the therapist to address high frequency	Home programmes for hard to reach families: programmes of activities specifically focused on being more

⁶⁵ <https://www.kentcht.nhs.uk/service/childrens-speech-and-language-therapy/>

⁶⁶ <http://agesandstages.com>

⁶⁷ <http://www.kelsi.org.uk/special-education-needs/special-educational-needs/local-inclusion-forum-teams>

⁶⁸ <https://www.kentcht.nhs.uk/wp-content/uploads/2016/03/Childrens-SLT-development-of-comprehension-norms-chart>

⁶⁹ <https://www.eyfstracker.com>

⁷⁰ <http://www.firstyears.org/tests/testslang.htm>

	Universal Offer	Targeted Support	Specialist Support
	basic use of symbols and sign incorporated into routines.	areas of need such as listening and attention and vocabulary development.	accessible for families who may struggle to engage with other interventions.
	Upward spirals: ⁷¹ specific programme for preschool settings using circle time principles to develop language skills.		Daily interventions for children with specific language impairment (SLI) who are on the Preschool SLI service pathway. ⁷²
	Early Talk Boost: ⁷³ specific programme of language group activities.		Picture Exchange Communication System (PECS) ⁷⁴ and communication books.
	Every Child A Talker top up: ⁷⁵ bespoke local extension from the original DfE funded Every Child a Talker initiative (2008–2010).		TEACCH approach ⁷⁶ (Treatment and Education of Autistic and related Communication Handicapped Children): specific programme developed by the National Autistic Society.
			The Communication Aids Team (CAT) ⁷⁷ team will set targets (post assessment and provision). These will be reviewed after an appropriate period of time (usually 6 months).

⁷¹ http://www.spiralstraining.co.uk/?page_id=17

⁷² <https://www.kentcht.nhs.uk/wp-content/uploads/2016/03/Childrens-SLT-pathway.pdf>

⁷³ <http://www.ican.org.uk/earlytalkboost>

⁷⁴ <http://www.pecs-unitedkingdom.com/research.php>

⁷⁵ <http://www.kelsi.org.uk/support-for-children-and-young-people/early-years-and-childcare/equality-and-inclusion/communication-and-language/activities>

⁷⁶ <http://www.nas.org.uk/about/strategies/teacch.aspx>

⁷⁷ <http://www.kelsi.org.uk/support-for-children-and-young-people/support-for-schools/kent-and-medway-communication-and-assistive-technology-service>

Discussion

Provision to support SLC in the early years in Kent, and in Thanet specifically, is developing but is still largely divided into the work of the early years consultants supporting settings and children's centres to establish the universal offer and the more specialist support from the speech and language therapy service and specialist services within the County Council.

There is more evidence of the use of programmes in the qualitative data provided by Kent than some of the other case study sites (30%) but little in the way of explicit linkage with the programmes and practices identified in Chapter 4. This may reflect the strong engagement with early years settings in completing the mapping tool, so there could simply be more reported. A number of the programmes reported aim to achieve the same outcomes as bespoke practices described elsewhere. However, as outcome measures were not reported it is not possible to evaluate the relative merits of the two approaches. This could be an interesting question for future research.

The complex commissioning partnerships provide a particular challenge for Thanet which has a demographic profile that is significantly more disadvantaged than other districts within Kent. Kent County Council, through the deployment of early years consultants, has been able to differentiate some support to Thanet. However, the provider of speech and language therapy services, while acknowledging the needs assessment findings that children in Thanet will benefit from a strong targeted offer, has not been able to specifically focus resource to additional provision due to the wider pressures in the system across Kent and the commissioning from CCGs being part of a complex block contract.

The jointly commissioned specification that will be finalised in 2017 is intended to address this issue through differentiated commissioning based on need.

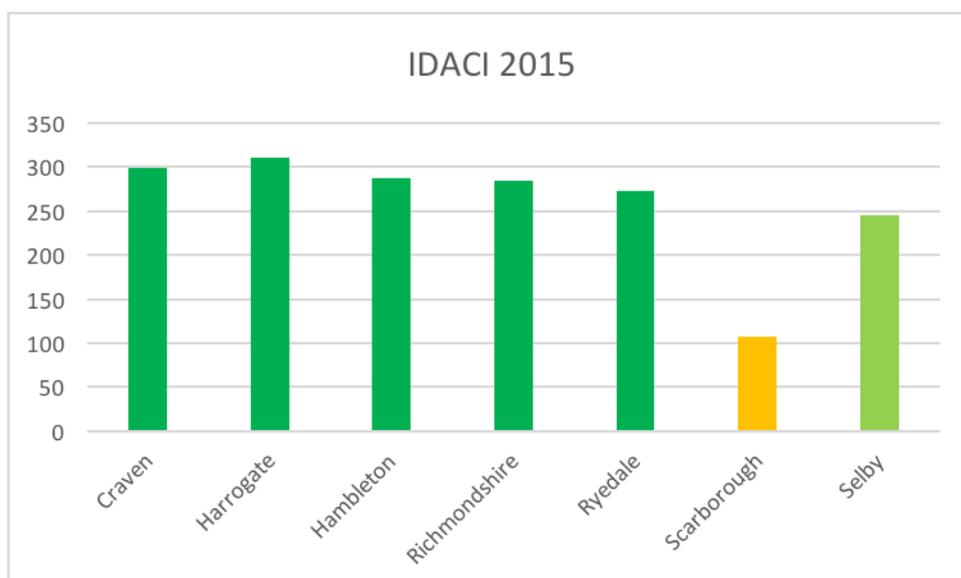
Case Study 3: District within shire county Yorkshire and Humber—Scarborough

Case study 3, Scarborough, is a local authority district within North Yorkshire in Yorkshire and Humber region. Scarborough is disadvantaged as measured on a range of indicators and is the only district within North Yorkshire to fall within the lowest 40% of the IDACI. Scarborough is ranked 82nd out of 326 authorities in England using the IMD2015 dataset, 107th out of 326 authorities using the IDACI, and 109th out of 326 authorities for the rank of LSOAs among the most disadvantaged 10% nationally.

North Yorkshire County Council has overall responsibility for education, early years and SEND across the whole county.

As can be seen from Figure 5.4, below, Scarborough is exceptional within North Yorkshire in terms of disadvantage despite being within the second most deprived quintile nationally. Furthermore, the Whitby area within the Scarborough District accounts for 70% of the most disadvantaged Lower Super Output Areas in the Scarborough District, meaning that Whitby itself has levels of disadvantage comparable with local authorities falling in the lowest quintile nationally.

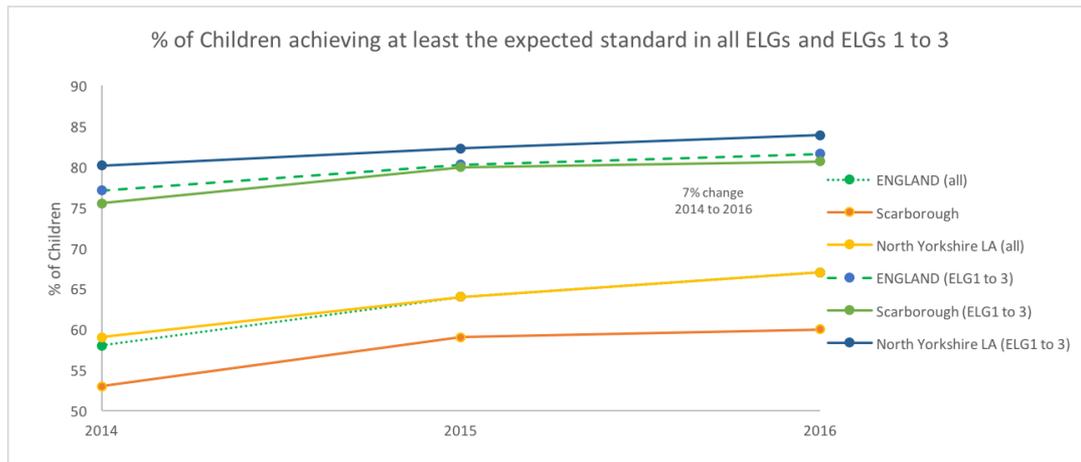
Figure 5.4: The IDACI ranks for districts within North Yorkshire



Progress of children's SLC, as measured by the Early Years Foundation Stage Profile (EYFSP), was reviewed over the 2014–2016 period and is presented in Figure 5.7 below. On average in England, there is a strong negative correlation between social disadvantage and the percentage of children achieving expected levels on the EYFSP across all areas of learning—and specifically for the Early Learning Goals 1–3, which relate to SLC.

Figure 5.7 shows that the percentage of children achieving the expected level for all ELGs in North Yorkshire approximates to the England average, while the percentage for ELGs 1–3 is consistently just above the England average. However, for Scarborough District, the percentage of children achieving the expected level in all ELGs is significantly lower than both the County and national average, while for ELGs 1–3, Scarborough is below the North Yorkshire average but less than 1% below the England average. This suggests that progress in other areas of development beyond SLC is of even greater concern for children in Scarborough.

Figure 5.5: Progress for the ELG 1–3 for Scarborough and North Yorkshire for 2014–2016 compared with England



Local organisational structures

The commissioning and provision structures for Scarborough District are complex. The District forms part of North Yorkshire County Council from which SEND support is administered. There are two Clinical Commissioning Groups accountable for parts of Scarborough District: Scarborough and Ryedale CCG and Hambleton, and Richmondshire and Whitby CCG. The complexity is exacerbated by the fact that these two CCGs engage with two different providers of health services. The health provision, including speech and language therapy, for the Scarborough District including the Whitby area is provided by York Teaching Hospital NHS Foundation Trust while the CCG responsible for Whitby commissions all other health provision from Harrogate and District NHS Foundation Trust.

For Scarborough specifically, there are:

Commissioners

- North Yorkshire County Council.
- NHS Scarborough and Ryedale CCG (Scarborough District except Whitby).
- NHS Hambleton, Richmondshire and Whitby CCG (Whitby only).
- Five schools commission a full-time SLT in Scarborough as part of a funded initiative.

Specialist Providers

- York Teaching Hospital NHS Foundation Trust (speech and language therapists, Scarborough and Whitby; health visitors, and other health professionals, Scarborough except Whitby).
- Harrogate and District NHS Foundation Trust (Whitby only for health visiting and other health services except SLT).
- North Yorkshire County Council: SLCN consultants (speech and language therapists employed to work strategically for the Council), specialist advisory teachers, portage workers, and early years consultants.

Wider workforce

- Children's centres, nursery classes, private, voluntary and independent early years settings.

North Yorkshire County Council has prioritised speech language and communication over a number of years, employing two speech and language therapists as consultants to the Local Authority to develop both a strategy for improving SLC of all children and young people, as well as for the ongoing

development of resources to support schools and settings in supporting those with SLC needs. A SLC Strategy was developed in 2013 and in 2015 a year-long project was undertaken to develop a joint commissioning strategy using the Balanced System®. This project was a collaborative piece of work with contributions from seven CCGs and both North Yorkshire County Council and the City of York in order to ensure joint commissioning across the whole area.

Scarborough District has been recognised as a specific area of need within the County and, through the efforts of the speech and language consultants, has attracted a number of initiatives over a number of years including pilots for ICAN Every Child a Talker and Talk Boost.⁷⁸ There is some award-winning provision, such as Whitby and Moors Children Centre which developed the 'Building Blocks for Language' programme that won a Communication Trust Shine a Light Award in 2015. Most recently, a collaborative of five schools in Scarborough have successfully secured funding to employ additional speech and language therapy support to work directly with the group of schools and feeder early years settings. Despite these initiatives, the needs of children and young people in Scarborough continue to prove challenging and Scarborough has been identified nationally as a 'cold spot' by the Department for Education.

The Local Offer

The North Yorkshire Local Offer is published at <http://www.northyorks.gov.uk/article/23542/SEND---local-offer>. Information is categorised into sections relating to SEND health and care, preparing for adulthood, education, SEND young people's local offer, EHC plans, transport, and information and advice. The early years information is found within the education section. The early years section is relatively small with links to disabled children's services and children's centres. Information about specialist support and provision may be found in the education section. Here, brief information is given about how SEND support is provided, with links to special schools and downloadable documents including SEND Early Years Guidance. This guidance document refers to communication and interaction in which SLCN is defined. There is also a table listing specific SLCN needs, descriptions of interventions, and expected outcomes. A link to The Communication Trust SLCN Progression Tools is provided, however, information about speech and language services and therapy in the local areas is not easily accessed or clearly stated to be part of the local offer.

⁷⁸ <http://www.ican.org.uk/earlytalkboost>

Table 5.4: Mapping of provision for children to support SLC and with SLCN in Scarborough

■ = Programme ■ = Practice

	Universal Offer	Targeted Support	Specialist Support
Family Support	Health visitor screening as part of Healthy Child programme.	<u>Local Offer</u> ⁷⁹ through North Yorkshire County Council website.	Key workers, as part of Early Help, support families to access different professionals.
	Families can look up information on local NHS provider websites. ⁸⁰	Developing language and communication groups.	Portage: home based support. ⁸¹
		Targeted holistic early help services using the Common Assessment Framework, for example, outreach from the Dales Special School. ⁸²	FAST: local parent-led initiative providing support as well as outings and holiday activities for families of children and young people with Autistic Spectrum Disorder. ⁸³
	Drop-in clinics reported by SLTs but not reflected in Children Centre offer. There is a lack of clarity as to whether these are being offered consistently.		Delivery of Cygnet parent training: ⁸⁴ a parent programme developed by Barnardos for families with a child with autistic spectrum disorder.
	I CAN parent workshop: no specific information provided as to what materials are used or whether this is		Early Bird training. ⁸⁵

⁷⁹ <http://www.northyorks.gov.uk/article/23542/SEND---local-offer>

⁸⁰ https://www.yorkhospitals.nhs.uk/our_services/az_of_services/speech_and_language_therapy/speech_and_language_therapy_childrens_services_in_the_community/

⁸¹ <http://www.thedispensary.org.uk/physical/health-directories/portage-home-visiting-service>

⁸² <http://www.thedalesschool.org/article/nycap/278>

⁸³ <http://www.scarboroughfast.co.uk/index.html>

⁸⁴ <http://www.barnardos.org.uk/cygnet.htm>

⁸⁵ <http://network.autism.org.uk/sites/default/files/ckfinder/files/Earlybird.pdf>

	part of a wider ICAN programme.		
			Selective mutism parents group: parent group facilitated by specialist speech and language therapist and speech and language consultant.
			North Yorkshire Communication Aids Partnership (NYCAP) ⁸⁶ conference – annual conference for parents
			Cygnets siblings – parallel programme to the Cygnets training specifically around support of siblings of children with ASD
Environment	Learning and Teaching Consultant visits promote language-rich environments.		'Good practice' guidelines for children and young people with selective mutism.
Workforce	Early Years SENCO Networks: regular continuing professional development networks for EY SENCOs.		'Good autism practice' training for early years staff; training provided by Early Years consultants.
	Area Learning Partnerships, ⁸⁷ Every Child A Talker briefings.		
	Inclusion groups clusters: meetings with an emphasis on the practical aspects of supporting children.		ELKLAN training: ⁸⁸ a suite of training programmes based on accredited trainers; leading to an learning award from the Open Learning Network at Level 3.

⁸⁶ <http://cyps.northyorks.gov.uk/index.aspx?articleid=13575>

⁸⁷ <http://www.northyorks.gov.uk/article/28840/SEND---specialist-support-and-provision>

⁸⁸ <http://www.elklan.co.uk>

	Telephone and email support to settings supporting children with SLCN, from both the SLT services and LA Consultants.		
	Making Sense of Autism training: ⁸⁹ provided as part of the Yorkshire and Humber regional hub for the Autism Education Trust.		
Identification	Health Visitor <u>Ages and Stages Questionnaire</u> ⁹⁰ (ASQ) assessment including identifying any SLCN.		Specialist assessment by SLT.
	Area SENCO visits support settings to discuss meeting the needs of identified children with SLCN.		
Intervention	Every Child A Talker (currently discontinued).	SLT group: Play with language. Playgroup setting with modelling from SLT and informal advice-giving.	Targets set and delivered one-to-one with the support of Specialist Teaching Service.
	Building blocks for language: ⁹¹ locally-developed programme which has been nationally recognized with an award.	Talkboost recommended by SLT: ICAN intervention programme, in this case for children directed to it by the SLT.	Lego therapy; Cued Articulation; Parent child interaction group: specialist intervention practices.
			One-to-one and small-group speech and language therapy interventions in clinic settings.

⁸⁹ <http://www.aetraininghubs.org.uk/early-years/training-hubs/>

⁹⁰ <http://agesandstages.com>

⁹¹ <https://www.pearsonclinical.co.uk/Sitedownloads/shine-a-light/2015/case-studies/bev-crisp.pdf>

Discussion

Table 5.4 summarises the provision identified by a range of stakeholders. The needs assessment indicated that the resource of speech and language therapy time allocated to Scarborough was not adequate to provide the full range of universal, targeted, and specialist provision to meet the whole system needs. The mapping shows a relative lack of provision at the targeted level for all strands despite reports of participation in a number of national initiatives to develop this level of support. There was very little reported in terms of support for communication environments.

There is evidence of the use of externally produced programmes at a universal level, typically delivered by County Council-employed specialists. The NHS-funded speech and language therapists predominantly work at a specialist level.

Interviews suggested that long term sustainability issues need to be addressed, including recruitment and retention of the key specialist personnel to ensure that training is consistent and is maintained as staff within the wider workforce change. This targeted level of provision was felt to be crucial to making a meaningful impact at a population level. Additional funding identified for supporting the development of SLC and supporting SLCN in Scarborough will address some of this need; this mapping will provide a baseline of provision against which to measure future progress.

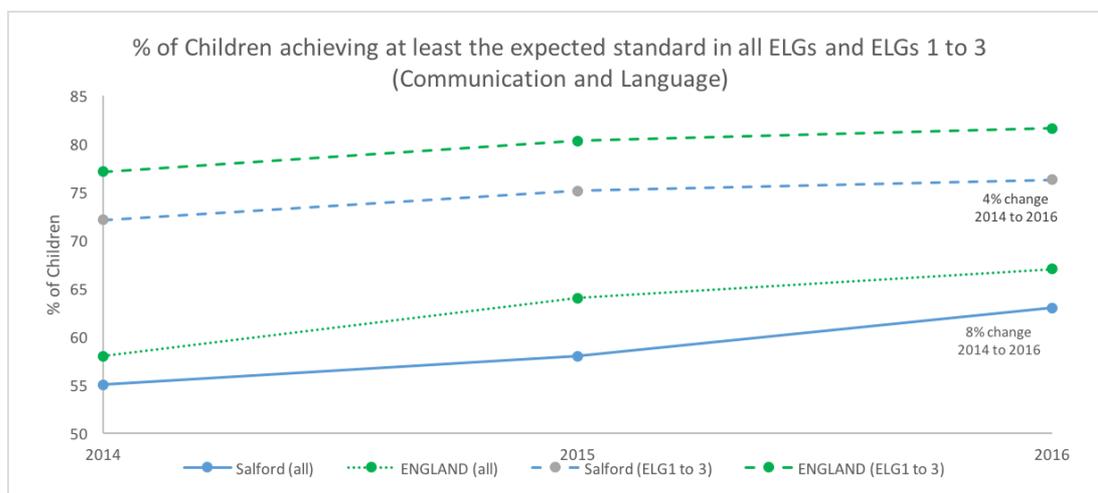
Case study 4: Metropolitan borough in the North West—Salford

Salford, a Metropolitan Borough and City in the North West of England, is among the most disadvantaged 20% of local authorities in England. Salford is ranked 22nd out of 326 authorities in England using the IMD2015 dataset, 30th out of 326 authorities using the IDACI, and 17th out of 326 authorities for the rank of LSOAs among the most disadvantaged 10% nationally.

Salford has an integrated early years pathway and strategy that involves all relevant professionals in early identification and offers a range of universal, targeted, and specialist support in settings and schools. This pathway is being considered as the blueprint for Greater Manchester under the Devo Manc agenda for the development of the Greater Manchester Combined Authority.

Progress of children's SLC, as measured by the Early Years Foundation Stage Profile (EYFSP), was reviewed over the 2014–2016 period and is presented in Figure 5.8 below. On average in England, there is a strong negative correlation between social disadvantage and the percentage of children achieving expected levels on the EYFSP across all areas of learning and specifically for the Early Learning Goals 1–3, which relate to SLC. Progress of children, as measured by the EYFSP, shows that the percentage of children in Salford achieving the expected level for both the ELG 1–3 and all the ELGs is improving but remains consistently below the England average. This is in line with the national picture of social disadvantage correlating with a lower percentage of children achieving the expected level.

Figure 5.6: Progress on ELG 1–3 and all ELG for Salford compared with England



Local organisational structures

Salford is currently a unitary authority sitting within Greater Manchester. This means that the current relationships between organisations and across agencies are relatively simple. The development of the Greater Manchester Combined Authority presents both opportunities and challenges as the commissioning landscape becomes more complex.

Commissioners

- Salford City Council.
- NHS Salford CCG.
- Schools as commissioners—a small, but growing, number of schools commissioning additional provision from SLT services.

Specialist Providers

- Salford Royal Hospital NHS Foundation Trust (health visitors, SLTs).

- Salford City Council (specialist advisory teachers, portage workers, early years consultants).

Wider workforce

- Children's centres, nursery classes, private, voluntary and independent early years settings

The Local Offer

The Salford local offer can be accessed at <http://www.salford.gov.uk/localoffer>. The offer is categorised into sections relating to the early years, transport, EHC plans, disabled children, special educational needs, and adult life, among others. In the early years section, advice is provided about early education places, childcare options, reviewing children's progress, and family information. Communication and language is referred to within the progress review section, stating that when children are between two and three years of age they will receive a progress review, communication and language being part of this review. The special education needs section of the offer clearly outlines different needs children may have (including difficulties with SLC) and provides downloadable descriptors of SEN provision within the primary and secondary years. This document has a section on speech language and communication needs (SLCN). This defines SLCN, and states what schools should generally, and specifically, be doing in relation to these needs. In addition, there is a provision table which outlines assessment, planning and review, while also listing specific areas of SLC needs, intervention for each need, and resources available for each area. The website has a service directory in which users can search for specific services. Speech and language services are can be found within the health area of the local offer.

Mapping of Provision

A range of responses at universal, targeted and specialist levels are in place. The integrated 2-year review is embedded and linked to the pathway for SLC. ELKLAN training is widely delivered within the City. Parent-child interaction and adult-child interaction approaches are reported to be used consistently. This mapping does not include the detail of the specialist level support available as the services have not yet completed a comprehensive provision map and the interviews conducted for this report were focused on the universal and targeted offer available across health and education in the early years. The use of Gateway Community Hubs and Communication Development Workers are specific features of the Salford provision.

There is strategic leadership and a multi-agency; multi-professional leadership group. Work is just beginning on the development of a single joint commissioning specification for SLCN across the age range using the Balanced System® as the framework for change.

Table 5.5: Provision for children to support SLC and with SLCN in Salford

 = Programme  = Practice

Balanced System® Strand	Universal Offer	Targeted Support	Specialist Support
Family Support	Health visitor screening as part of Healthy Child programme.	<u>Local Offer</u> ⁹² through Salford City Council Website.	
	Speak up Salford: ⁹³ information for parents and carers. This is a micro site within the Salford Royal Infirmary website providing a range of information and resources.		
	Children's Centre sessions with key messages: Play; Talk; Read Five to thrive These are parent information and support sessions developed locally.		
Environment	Communication-supportive environments as a consequence of training and development (ELKLAN) ⁹⁴ across children's centres, nurseries and gateway community hubs.	Play plans for specific children and model and coach in order to support the nursery in enhancing environment appropriately.	

⁹² <https://www.salford.gov.uk/children-and-families/local-offer-special-educational-needs/>

⁹³ <http://www.speakupsalford.nhs.uk>

⁹⁴ <http://www.elklan.co.uk/information/commissioners-schools/0-5yrs/becoming-an-elklan-communication-friendly-early-years-setting>

Balanced System® Strand	Universal Offer	Targeted Support	Specialist Support
Workforce	Workforce development offer delivered to health visitors and preschool staff including sessions entitled: ‘What is communication, speech and language?’; ‘What to expect when?’; ‘Monitoring and early identification’; ‘What to do? Who to go to when concerned’; ‘Risks and protective factors’ and ‘General language promotion’.	ELKLAN training: 0–3 supporting communication 3–5.	Joint sessions and on the job supervision and support for communication development workers.
		SLT models strategies and interventions to setting staff to develop their skills and confidence.	
Identification	Health visitor <u>Ages and Stages Questionnaire (ASQ)</u> . ⁹⁵ assessment including identifying any SLCN.		
	Every Child A Talker along with professional judgement to trigger onward action through pathway.	Use of the <u>WELLCOM</u> ⁹⁶ tool for systematic approach to identification of children in the EY. Data now being used to track progress from 2–5yrs.	

⁹⁵ <http://agesandstages.com>

⁹⁶ <https://www.gl-assessment.co.uk/products/wellcomm>

Balanced System® Strand	Universal Offer	Targeted Support	Specialist Support
Intervention	Community Development Workers (CDW) advise settings, model strategies, and focus activities for high incidence factors, e.g. listening and attention.	Talking Tots Groups: parent/toddler groups targeting parent/child interaction and early communication development.	SLT packages as expected: one-to-one and group interventions across a range of needs.
		CDW works in home with children with specialist needs through targeted interventions delivered at home Interventions have been designed and are supported by SLT.	

Discussion

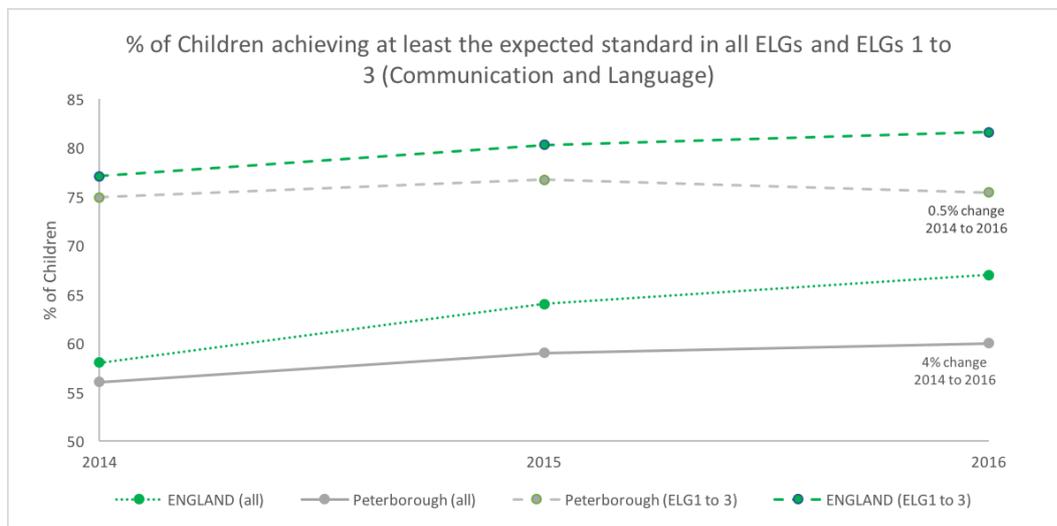
Salford is taking a strategic approach to joint commissioning and provision, building on existing practice in the early years which is being used as the model for other areas within the Greater Manchester Devo Manc initiative. However, the seamless continuum of universal, targeted, and specialist support continues to evolve. The strategic group established to develop and implement a joint specification is currently defining shared outcomes which will form the basis of a series of specifications ranging from support for all children in the development of good SLC skills through to the specialist provisions required to support SLCN.

Case study 5: Unitary authority in the East of England—Peterborough

Case study 5, Peterborough, is a unitary authority and city in the East of England and is among the most disadvantaged 40% of local authorities in England. Peterborough is ranked 58th out of 326 authorities in England using the IMD2015 dataset, 49th out 326 authorities using the IDACI, and 60th out of 326 authorities for the rank of LSOAs among the most disadvantaged 10% nationally.

Progress of children as measured by the EYFSP is represented in Figure 5.9 below. It can be seen that in Peterborough the percentage of children achieving the expected level is consistently lower than the England average. When contrasted with Salford, also a unitary authority, it can be seen that, despite being less disadvantaged, the percentage of children achieving the expected level in Peterborough is lower than that in Salford and is not showing a positive trend.

Figure 5.7: Percentage of children achieving the expected level for the ELGs and ELG 1–3 in Peterborough relative to England.



Local organisational structures

Peterborough City Council provides the local authority function while Peterborough and Cambridgeshire CCG is responsible for health commissioning. There is a Joint Commissioning Unit that oversees the commissioning of services for children and young people across the local authority and CCG areas.

Commissioners

- Peterborough City Council.
- NHS Peterborough and Cambridgeshire CCG.
- Joint Commissioning Unit acting on behalf of City Council and CCG.
- Schools as commissioners—very little school commissioning to enhance the offer for SLCN.

Specialist Providers

- Cambridge and Peterborough NHS Foundation Trust (speech and language therapy).*
- Cambridgeshire Community Services NHS Trust.*
- Peterborough City Council (specialist advisory teachers, portage workers, early years consultants).

* The lead from the SLT service in CCS is currently leading the integration of provision across the whole of Peterborough and Cambridgeshire.

Wider workforce

- Children's centres, nursery classes, private, voluntary, and independent early years settings.

The Local Offer

Peterborough's local offer may be found at <https://www.peterborough.gov.uk/residents/special-educational-needs/local-offer/>. Information is divided by sections relating to childcare, education, advice, what to do if you think your child has SEN, preparing for adulthood, and SEND partnership service, among others. The education section provides an overview of what special educational needs are, stating that children may have emotional and behaviour difficulties, or speech and language difficulties (although no definitions are provided). Also indicated are current education providers, what schools should be doing to provide SEN support, funding for SEN, as well as defining high needs. The early years category provides descriptive information about portage service, the Early Identification Officer, early support, and early support co-ordinator. There is a link to early years service providers' contact information, including children's centres and home visiting services; against these, the type of service provision is stated (SLC needs are listed as a service provision in 3 out of 5 cases).

Mapping of Provision

The provision for Peterborough is taken from the mapping exercise conducted as part of the recent needs assessment in which practitioners, including early years provisions, were invited to enter data as well as participating in focus groups and targeted interviews.

Table 5.6: Provision for children to support SLC and those with SLCN in Peterborough

= Programme = Practice

	Universal Offer	Targeted Support	Specialist Support
Family Support	Health visitor screening ⁹⁷ as part of Healthy Child programme.	<u>Local Offer</u> through Peterborough City Council website. ⁹⁸	Key workers: ⁹⁹ as part of Early Help; support for families to access different professionals.
		Talking Together Group for children with language delays. Workshop provides information, modelling, and booklet for parents. ¹⁰⁰	Portage: home based support. ¹⁰¹
		Parent sessions: SLT provides guidance sessions for parents to support at home following assessment.	Preschool Down Syndrome Support Group: ¹⁰² a parent group specifically aimed at supporting parents of children with Down Syndrome with information, support meetings, and activities.
Environment			

⁹⁷ <http://pcc.force.com/LocalOfferPublicPortal>

⁹⁸ <https://www.peterborough.gov.uk/residents/special-educational-needs/local-offer>

⁹⁹ <http://pcc.force.com/LocalOfferPublicPortal>

¹⁰⁰ <http://www.cpft.nhs.uk/training/peterborough-paediatric-speech-and-language-therapy-service.htm>

¹⁰¹ <http://pcc.force.com/LocalOfferPublicPortal>

¹⁰² <https://www.facebook.com/Peterboroughareadownssyndromegroup/>

	Universal Offer	Targeted Support	Specialist Support
Workforce	Every Child A Talker support was provided until funding withdrawn.	Health visitor training for identification of dysfluency.	SEN worker in setting attends relevant training to support specialist SLCN, e.g. Makaton signing system. ¹⁰³
		Access to Down Syndrome information group for early years practitioners.	Range of training around supporting specialist SLCN provided by SLT and specialist teaching services.
			SLT models strategies and interventions to setting staff to develop their skills and confidence in supporting children with specialist SLCN.
Identification	Health Visitor <u>Ages and Stages Questionnaire (ASQ)</u> ¹⁰⁴ assessment including identifying any SLCN.	Preschool referral clinics to which children in the early years can be referred by parents, GPs, early years staff, or any other concerned professionals.	Dysphagia assessment: ¹⁰⁵ specialist assessment for children and young people with eating and drinking needs.
	All families registered with the Children's Centre are offered an appointment with SLTA for screening of early SLCN.		Preschoolers with hearing impairment (moderate to profound bilateral loss) are offered a specialist assessment.
	Settings use EYFS tracker to monitor children's progress, including SLCN; this information is used to ensure that referrals are made as appropriate.		Multi-disciplinary team assessment, including SLT, for children and young people presenting with more complex needs.

¹⁰³ <https://www.makaton.org/aboutMakaton/research>

¹⁰⁴ <http://pcc.force.com/LocalOfferPublicPortal>

¹⁰⁵ <http://www.cpfh.nhs.uk/training/peterborough-paediatric-speech-and-language-therapy-service.htm>

	Universal Offer	Targeted Support	Specialist Support
Intervention		Targeted intervention practices led by SLTs: preschool speech sound group; one-to-one sessions with parent and therapist.	Intensive Interaction pathway: ¹⁰⁶ Intensive Interaction is a structured approach to teaching pre-speech fundamentals of communication to children who have severe learning difficulties or autism.
		Preschool Down Syndrome 'see and learn' speech sound development targeted group.	Preschool ASD parent training on strategies and Attention Autism model. ¹⁰⁷
		Down Syndrome support group with SLT. ¹⁰⁸	Palin PCI: ¹⁰⁹ a one-and-a-half hour parent-child interaction based on the programme from the Michael Palin Centre. Involves child assessment; one 2-hour parent assessment; 6 sessions once a week; follow up 6-8 weeks.
		One-to-one intervention for preschool children with language and communication delay or disorder.	Lidcombe Programme Assessment: ¹¹⁰ one-to-one therapy sessions. Training of school or preschool staff as required.
			Preschoolers with hearing loss seen to

¹⁰⁶ <http://www.intensiveinteraction.org>

¹⁰⁷ <http://www.parkhouseschool.co.uk/event/attention-autism/>

¹⁰⁸ <http://fis.peterborough.gov.uk/kb5/peterborough/fsd/organisation.page?id=42toetYmBUandfamilychannel=3055945>

¹⁰⁹ <http://www.stammeringcentre.org>

¹¹⁰ <http://www.lidcombeprogram.org/families-care-givers/parent-friendly-research/>

	Universal Offer	Targeted Support	Specialist Support
			develop speech and language skills. ¹¹¹

¹¹¹ <https://www.peterborough.gov.uk/residents/special-educational-needs/local-offer/sensory-impairment/>

Discussion

A needs assessment and development, as well as a joint specification for SLCN across Peterborough City Council, Cambridgeshire County Council and Peterborough and Cambridgeshire CCG, have recently been completed. The needs assessment was able to evidence a lack of resource for services to support SLC in the early years and schools across Peterborough, and a significant new investment has been identified as a consequence (circa £500k). This new investment will facilitate the implementation of the joint specification across Peterborough and Cambridgeshire delivered by an integrated SLCN provision and will also support the development of core services' ability to support the development of SLC skills for all children.

When reviewing the mapping data, it is worthy of note that there is a lack of universal offer and enhancing environments activity reported. Clearly there is a risk of under-reporting, and a possible lack of awareness of the link between certain universal activity and its relevance to SLC, but nevertheless it is unusual to have so little reported universal activity where there has been engagement from children's centres and settings in completing the tool. A common theme was to mention provision which had been in place five or more years ago but which had been withdrawn as austerity impacted on funding. In terms of the environment strand, it is also possible that settings and schools were not as engaged in the mapping activity as in other examples, however the specialist services did not report being active in supporting initiatives to enhance environments either.

The provision map will serve as a baseline for the implementation of the new specification with comprehensive universal, targeted, and specialist offer and the benefit of the significant new investment in this important area.