

**Evaluating the effectiveness of
the Oral Language for Literacy Intervention
in improving children's language and expressive writing skills**

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Abstract

Oral language plays a crucial role in reading and writing development. Good oral language skills are also critical for children's psycho-social development. Many children enter primary education with weak oral language skills, in particular, children from socially disadvantaged backgrounds. These children often require intervention and support to ameliorate their language weaknesses. For some children, difficulties related to oral language persist into the late primary school years. This thesis reports on the development and evaluation of an Oral Language for Literacy Intervention designed to improve the oral language and expressive writing skills of children aged 8 - 10 years with identified language weaknesses.

A randomised controlled trial was conducted in 50 Year 4 classes in 33 primary schools in England. The language skills of all children in participating classrooms were assessed using a language screening app, LanguageScreen. The screening identified the 6 children in each classroom with the lowest LanguageScreen scores (n=296). These children were randomised to an intervention (n=148) or control group (n=148). The children in the intervention group received the 20-week Oral Language for Literacy Intervention, delivered by teaching assistants trained in the delivery of the programme. The children in the control group received their regular classroom teaching.

Children who received the Oral language for Literacy Intervention made statistically significantly greater gains in language ($d = 0.38$) and expressive writing skills ($d = 0.42$). Substantial improvements were seen in the ability of children in the intervention group to define words taught in the programme. Children in the intervention group also improved in their ability to define words that they had heard in the passages read aloud to them, but which had not been directly taught. Qualitative feedback from participating schools demonstrated an overwhelmingly positive response to the OLLI programme and indicated that children were generalising taught language skills in the classroom.

These findings have important implications for improving the language and writing skills of children in the later primary years and for improving educational attainment. As children with language weaknesses reach the end of primary education, the Oral language for Literacy Intervention can support them to develop the language and expressive writing skills required for the secondary curriculum, a curriculum which places significant language and writing demands on young people.

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1 Introduction

1.1 General introduction

This chapter will set out the focus and aims of the thesis and will provide the rationale for developing and evaluating the efficacy of an oral language intervention for children in the late primary school years. The structure of the thesis will be presented.

Oral language skills are critical for the development of literacy skills (Hjetland et al., 2020; Hulme et al., 2015; Snow, 2016) and psycho-social development (Norbury et al., 2016; Van Agt et al., 2011). There is a strong body of evidence that demonstrates that children from disadvantaged backgrounds have weaker language development than children from more privileged backgrounds (Guo & Harris, 2000; Hart & Risley, 1995; Roulstone et al., 2011), which can adversely affect educational attainment, employment, and long-term outcomes, and can contribute to social disadvantage. The prevalence of early language difficulties in the pre-school population is between 7% and 14%, with children from socially disadvantaged backgrounds more likely to present with language difficulties (Law et al., 2017). The most recent data from the Department of Education (DfE) (Department for Education, 2023a) shows that the most common area of need in schools is Speech, Language and Communication Needs (SLCN). However, knowledge and skills among teachers in primary

schools in how to support children's language is limited due to a lack of staff training in oral language development (Dockrell et al., 2010; Joshi et al., 2009; Stark et al., 2016). The high prevalence of language and communication difficulties in schools, coupled with limited training for school staff in how oral language skills develop and how children should be supported, in turn impacts on children's reading and writing development.

An explanation of the primary education system in England will now be provided. Primary education in state funded schools in England is divided into three Key Stages. The Early Years includes nursery and pre-school education for children aged 3 to 4 years. This is followed by the Foundation stage for children aged 4 to 5 years. Children then enter Key Stage 1 which includes Year 1 (age 5 to 6 years) and Year 2 (age 6 to 7 years). Years 3 to 6 constitute Key Stage 2 (ages 7 to 11 years), the final stage of primary school education. Primary school classes have approximately 30 pupils, and schools may have one class per year group (one-form entry), two classes (two-form entry), or three classes (three-form entry). There are very few large primary schools in England that have four classes in each year group (four-form entry).

In line with the extensive research evidence demonstrating the crucial role that oral language skills play as the foundation for reading and writing (Dockrell et al., 2019; Hulme & Snowling, 2016; Nation et al., 2004) the Primary National Curriculum for English (DfE, 2013) includes a specific

focus on the teaching of spoken language. The curriculum highlights the importance of oral language in children's cognitive development and its social and linguistic impact. The programmes of study for Key Stages 1 and 2 emphasize the extent to which oral language is critical for reading and writing. Particular attention is drawn to the need for children to be exposed to a broad range of language that is challenging on the conceptual level and supported through interactions with those with appropriate linguistic knowledge and experience in responding to individual need (Dobinson et al., 2024). This is critical to the development of vocabulary and grammar and contributes to the comprehension required for reading and writing. Statutory requirements for spoken language are not viewed in isolation in the programmes of study but are set within the context of the curriculum domains for reading and writing.

The reciprocal relationship between reading and writing is underpinned by oral language skills. Knowledge about language that is applied to reading and writing stimulates growth in both domains (Shanahan, 2006). Children with language weaknesses, such as reduced vocabulary knowledge and limited grammatical and syntactical skills, have a heightened risk of literacy difficulties (Dockrell & Connelly, 2015) and struggle with decoding and reading comprehension which in turn inhibit writing production. Oral language skills at pre-school and kindergarten have been found to predict the quality of written narratives at third grade (Kim et al., 2015). A recent systematic review and meta-analysis, examining whether children classified

as having Specific Language Impairment (SLI) have writing difficulties (Graham et al., 2020), provided strong evidence that oral language difficulties adversely affect writing performance. Access to vocabulary is both restricted and slow, affecting the quality of writing, lexical diversity and quantity of text produced. Weaknesses in oral language fluency were found to impact on both the quantity and cohesion of text produced.

It is evident then that there is a pressing need for early identification of oral language difficulties and for access to robustly evaluated language interventions to ameliorate these difficulties. Although the National Curriculum for English in England promotes an integrated instructional approach to spoken language, reading, and writing in primary schools, the prevalence of language difficulties is high and reading and writing attainment continues to give cause for concern. Approximately one third of children leave primary education without having reached the required standard in reading and writing (DfE, 2023b).

The evidence-base for interventions that can improve children's language in pre-school and the early years is growing (Bowyer-Crane et al., 2008; Fricke, Bowyer-Crane, Haley, Hulme, & Snowling, 2013; West et al., 2021). Findings from a range of studies reported by Law et al. (2017) indicate that of children who are identified as having language difficulties at pre-school, approximately 70% see those difficulties resolved by the time they reach primary school through usual practice, but that 30% of those children have

difficulties that persist beyond pre-school. In addition to the two groups identified above, Law and colleagues (2017) identified a third group: children who seem to progress well initially but whose difficulties become apparent later. This is of particular relevance to the present study.

As children move through the primary years, the focus moves from learning to read and write as discrete skills, to applying the skills of reading and writing to learning across the curriculum. Children go from learning to read and write, to reading and writing to learn. The difficulties experienced by children with oral language weaknesses and comprehension difficulties, including those for whom English is an additional language, can be challenging for teachers to detect as they are often masked by good decoding skills (Hulme & Snowling, 2011; Nation et al., 2004). It is argued that the difficulties experienced by children with good decoding skills, but weak language comprehension do not become evident until children are in the third or fourth year of primary school (Oakhill, 2014) which is attributed to the limited demands on comprehension in early years reading material and the emphasis placed on decoding when assessing reading competence. Once texts become more complex and the focus shifts from the mechanics of learning to read to using broader language skills to understand the meaning of text, children with poor comprehension may present with unexpected reading difficulties (Catts et al., 2012).

It is proposed (Hulme & Snowling, 2011; Nation et al., 2004) that children with good decoding skills but impairment in reading comprehension, often referred to as 'poor comprehenders', have a disability that is hidden from both the child and the teacher. These children can read aloud accurately and only exhibit difficulties when required to show an understanding of what they have read. The difficulties stem from underlying language weaknesses, including poor vocabulary knowledge, grammar processing difficulties, and language comprehension impairments.

There are an increasingly number of children in primary classrooms who have difficulties with talking and with understanding words (Speech and Language UK, 2023). These may be language difficulties that persist despite intervention, or difficulties that have not been detected or addressed. This may be because current literacy assessment practices at the end of Key Stage 1 do not take measures of linguistic comprehension and are limited to the mechanics of reading and writing, rather than the broader associated competences in these domains. Oral language interventions to support these children as they progress into the upper primary school years have attracted much less research attention than those targeting children as they enter the early years of schooling. Furthermore, many programmes that have been developed and evaluated have largely targeted individual components of oral language such as vocabulary, grammar, narrative structure, or inferential skills, rather than bringing

these together in a multi-component programme which recognises the interplay between these skills in everyday language.

Evidence indicates that vocabulary interventions have produced improvements in vocabulary knowledge (Dyson et al., 2018) and effective strategies to derive word meanings (Nash & Snowling, 2006). However, targeting vocabulary alone does not address the breadth of factors that may inhibit a child's understanding of spoken and written language. This could be partially explained by the finding that vocabulary weaknesses are not universally observed in children with comprehension difficulties (Ricketts et al., 2007) and could be linked to the theory that, although all poor comprehenders demonstrate elements of oral language weaknesses, the pattern of the deficit varies among children (Colenbrander et al., 2016). The evidence from vocabulary interventions and studies of children with poor comprehension suggests that interventions and instructional approaches for children with language comprehension weaknesses should include but should not be limited to explicit vocabulary teaching.

In addition to the knowledge of the meaning of individual words, an understanding of the relationship between words is required for the comprehension of spoken and written language (Castles et al., 2018). Interventions which target vocabulary within the context of oral and written narratives offer the potential to be more effective than interventions targeting vocabulary alone. Children can learn about how

words operate together and interact to produce meaning, while at the same time learning about grammar and narrative structure. Castles et al. (2018) propose that comprehension is essentially about inference generation with evidence from research indicating that children with a poor comprehension profile experience difficulties in the integration of ideas within a text in addition to weaknesses in the ability to answer inferential questions.

Directly teaching children to make inferences and draw upon a range of background knowledge to understand a written or spoken narrative can support reading comprehension. Studies have shown that children with weak comprehension skills are less likely to be able to build a coherent mental model when reading or listening to a narrative as they struggle to utilise the contextual clues provided and rely instead on literal information (Cain & Oakhill, 1999). There is evidence from intervention studies that children with poor comprehension skills can be trained to develop inferential skills. Children can also be taught to respond to questioning and to generate their own questions about a narrative, a strategy used in the reciprocal teaching (Palincsar & Brown, 1984) described in studies reviewed by Rosenshine et al. (1994). The National Reading Panel (NRP, 2000) also highlighted the important role played by posing questions during reading instruction and questions generated by pupils in improving comprehension skills. An experimental study by Elbro and Buch-Iverson (2013) provided support for the effectiveness of

interventions that teach children how to utilise background knowledge to support inferential comprehension.

Although the interventions described above have been shown to lead to some improvements in children with language difficulties, there are limitations to their efficacy as they address individual components of oral language and therefore cannot fully address individual differences, nor the complex interplay between component skills. Studies have shown different profiles of oral language difficulties in children in the upper primary school years, with different patterns of strength and weakness across the syntactical, lexical, vocabulary and semantic domains (Colenbrander et al., 2016). Interventions for children with oral language weaknesses therefore need to take account of the many skills involved in comprehension and the evidence for improving these skills. Including multiple components that can address the range of weaknesses observed in children with oral language and comprehension difficulties offers a route to supporting individual differences, as seen in Clarke et al. (2010) who developed and evaluated a multi-component oral language intervention which led to gains in children's reading comprehension and vocabulary knowledge. This focused on supporting children to develop the strategies for the understanding and production of spoken language.

The aim of Clarke et al.'s oral language programme was to improve reading comprehension by targeting the language skills that are known to underpin

the understanding of written text, such as, listening comprehension and vocabulary knowledge. However, there is a gap in research evaluating the effectiveness of multi-componential language interventions which aim to directly improve oral language, oral narrative production, and written expression. There is some evidence that language interventions that focus on narrative structure can improve writing, (Spencer & Petersen, 2018) but this comes from small, quasi-experimental studies that did not involve random assignment of children to treatment conditions, and therefore from which a clear causal relationship is harder to confidently assert. The overarching aim of the project reported in this thesis is to address this gap in oral language intervention research in the late primary years by developing and evaluating the efficacy of the Oral Language for Literacy Intervention (OLLI) in improving the oral language skills and written expression of children with identified language weaknesses and assessing its effects through a robust design that allows for confident causal inferences.

1.2 Structure of the Thesis

The introduction to the first chapter has presented the focus and aims of the thesis and will now present an overview of the chapters that follow. Chapters 2, 3 and 4 will provide a review of the literature that has informed the research questions for this thesis. The development of oral language skills will be discussed, and the role that oral language plays in reading and

writing will be explained. Current practices for assessing language, reading, and writing will be explored. The subsequent chapter will examine the impact of oral language on psychosocial development, educational attainment, and long-term outcomes. The final literature review chapter will provide a critical discussion of oral language interventions in the primary years and will demonstrate the need for the development of interventions in the upper primary school years, designed to improve children's oral language proficiency and expressive writing skills.

The development of the Oral Language for Literacy Intervention (OLLI) will be described in Chapter 5 together with the research that underpins the structure and content of the programme. Chapter 6 will explain the research design and method of the study. The results for all outcome measures will be reported in Chapter 7. The qualitative feedback from schools and children will be presented in Chapter 8. A discussion of the findings will follow in Chapter 9, together with the implications of the study's findings for policy and practice in literacy teaching and targeted intervention. Finally, a summary of the research will be provided in Chapter 10 and the importance of language and literacy interventions in the upper primary school years will be highlighted.

1.3 Summary

Oral language skills underpin reading and writing development and are critical for academic attainment and occupational success. To date, the development and large-scale evaluation of oral language interventions have largely focused on the early primary school years. However, while children identified in the early years as experiencing language difficulties are often effectively supported and their difficulties addressed, for some children these difficulties persist into the later years. Moreover, in some cases, difficulties are not identified until later in the child's school career, at a time when a focus on oral language has decreased and the importance of reading and writing to learn, rather than learning to read and write, is the primary focus of the curriculum. The language difficulties experienced by these children require support through interventions that have been established to be effective through rigorous evaluation. The development and evaluation of the OLLI programme, reported here, aims to demonstrate that oral language interventions for children in the upper primary school years can improve educational attainment and reduce social inequalities.

2 The development of oral language and literacy skills

2.1 Introduction

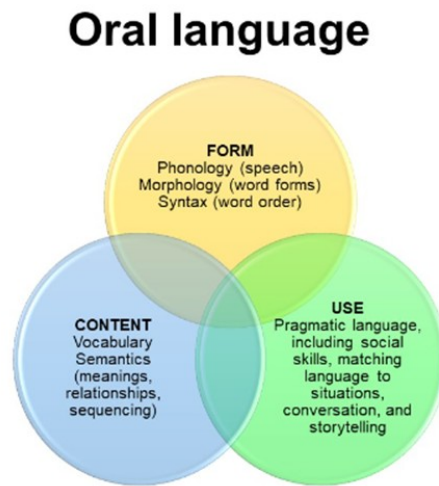
This chapter will examine how oral language skills develop, and the role that they play in underpinning development in reading and writing. The current policy and practice in the teaching of language skills, reading and writing will be explored followed by a critical discussion of methods for assessing language and literacy skills.

2.2 Oral language development

Oral language is a complex and multi-dimensional system 'that comprises vocabulary (semantics), grammar (syntax and morphology) and discourse processing (pragmatics) in both the expressive (language production) and receptive (language comprehension) domains' (Donolato et al., 2023, p.3).

These dimensions interact with each other to produce effective communication. Bloom and Lahey's model of oral language (Bloom & Lahey 1978), as shown in Figure 2.1 below, illustrates how language is composed of elements related to form, content and use.

Figure 2. 1. Dimensions of Oral Language (Bloom & Lahey, 1978)



Form relates to how language is produced and organised, drawing on the domains of phonology, syntax and morphology. Phonology involves the mapping of spoken sounds on to meaning (Snowling & Hulme, 2006). Syntax involves the organisation of the words produced into coherent units, using the rules that each language requires to construct phrases or sentences with meaning (Honig, 2007). Content is concerned with vocabulary and takes account of the semantic relationship between words. The third area in the Bloom and Lacey model, 'Use', focuses on the function of language, the pragmatic aspects of language that relate to how communicative language is used in social situations and considers the appropriate use of language and the understanding of social rules in communication (Bloom & Lahey, 1978). Children need to master the form and content of language, and to develop the skills to apply this knowledge,

in order to communicate effectively and to progress both socially and academically.

Oral Language is comprised of a set of core skills that children require for language and communication and for learning. It is argued that language learning is the result of the relationship between a child's capacities for learning and the social context in which the learning takes place (Feldman, 2019). Dockrell et al. (2023) explain that there are three key components of children's early language development. Firstly, there is the ongoing development of vocabulary knowledge. There are multiple facets to how vocabulary knowledge and skills develop (McKeown, 2019). Children need to learn about the characteristics of the meaning of a word, how and when it is used, its semantic links with other words, and its syntactic function in different contexts. McKeown highlights the importance of children being exposed to words used in different contexts to understand how context influences changes in the meaning of the word. She suggests that it is this shift in meaning according to context that requires the flexibility that facilitates a child's adaptation of word use in a range of situations. McKeown (2019) argues that children's vocabulary knowledge grows incrementally as children encounter words on multiple occasions.

Secondly, Dockrell et al. (2023) propose that alongside vocabulary development children begin to understand how the grammatical rules that govern language use operate in spoken language. They argue that for

grammatical skills to develop, a child is required to have a significant number of words in their lexicon. Tager-Flusberg (2002) explains that during this language acquisition process, children develop the ability to understand and produce spoken language in the language or languages that they have experienced in their early environment. Vocabulary knowledge and the understanding of the semantic relationships between words continue to grow, and children start to develop an understanding of the rules that enable these words to combine to form sentences with increasingly complex grammatical structures. Children also begin to understand the morphological rules that are applied to verbs in spoken language. Children learn to use these complex linguistic systems proficiently in spoken language in a range of different social situations (Tager-Flusberg, 2002). It is argued that vocabulary knowledge underpins learning and the production of syntactical structures with the ability to use inflectional morphology the next stage in language development (Dockrell et al., 2023).

The social context and language learning environment of the home and early schooling have been shown to be crucial to children's oral language development (Feldman, 2019; Dockrell et al., 2023). Dockrell et al. argue that language growth is enhanced through interactions with adults that involve the use of increasingly diverse and complex language in the early years of a child's life. Children's early language learning is facilitated by warm, respectful human interactions involving exchanges with adults and

peers (Feldman, 2019). The child needs to engage actively with language input and must be attentive to discrepancies between the spoken language they hear in their environment, and how they themselves might have articulated these words and sentences, and how they interpret the word meanings. Recognising these distinctions supports growth in semantic and syntactical learning (Feldman, 2019).

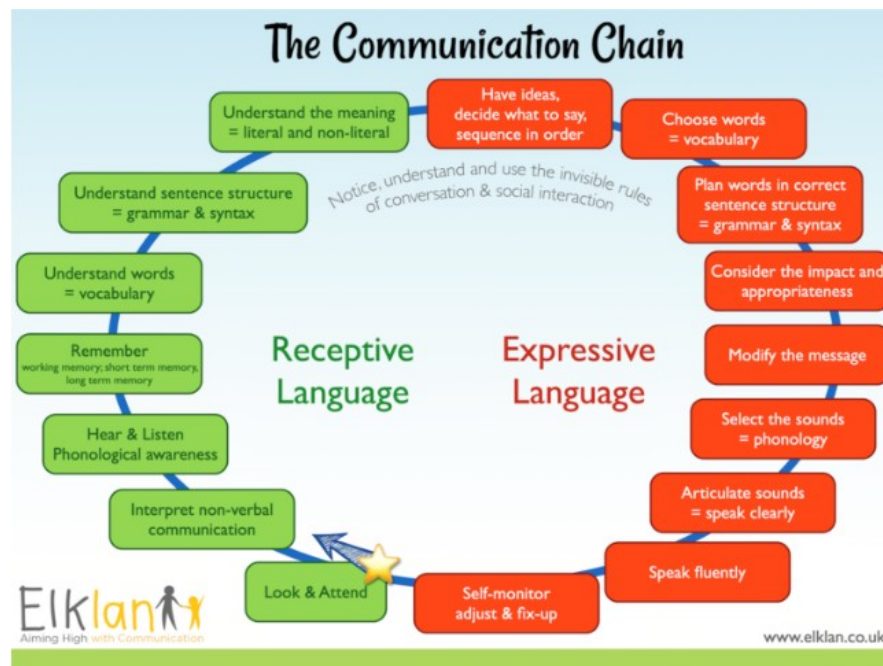
In addition to the development of the core language skills of vocabulary and grammatical knowledge, Dockrell et al. (2023) draw attention to a third language domain, narrative skills, that have been shown to play a central role in social communication and literacy development. It is suggested that narrative skills can be seen as a product of the core language competencies of vocabulary and grammar skills, combined with pragmatic language skills (Karlsen et al., 2021). Karlsen et al. propose that a child's narrative skills are a measure of how vocabulary and grammatical skills are utilised by a child in communication and in daily life. A child's ability to tell stories and to produce descriptions of events in such a way that other children and adults can understand them is highly valuable for positive interactions and communication skills (Karlsen et al., 2021). They argue that this is what is understood as narrative skill and relates to a child's ability to provide verbal description of the content of events and the inter-relation between events. Narrative development involves the interplay between cognitive, linguistic and social abilities (Norbury et al., 2014). A child's ability to produce

connected discourse, for example, narratives or conversations, is underpinned by vocabulary and grammar skills. Children's engagement in interactions with an adult facilitates the development of discourse skills as a result of adult feedback and scaffolding. Children with weaknesses in vocabulary and grammar skills in turn experience difficulty with narrative production (Dockrell et al., 2023).

Norbury et al. (2014) argue that telling stories is viewed as a narrative context that places specific cognitive demands on a child. The child is required to master syntactic, lexical and pragmatic skills, and to use memory to recall and arrange a series of events in the correct temporal sequence. Additionally, the child is required to understand a character's perspectives and to draw on information integrated into the text and information about the world beyond the text.

At a simplified level, oral language relates to the development of listening and speaking skills; understanding words and sentences spoken by others and articulating words within appropriately structured phrases or sentences so that they can be understood by others. The Communication Chain (Figure 2.2 below) shows the component skills involved in listening or receptive language, and the skills children must draw on to express themselves in spoken, or expressive language.

Figure 2. 2. *The Communication Chain* (Elks, L. and McLachlan H. (2012) *Language Builders. ELKLAN*)



Receptive language, or comprehension of the spoken word, develops ahead of expressive language, or language production (Hulme et al., 2020). It is difficult to precisely measure an infant's receptive language at 18 months and even more so at the age of 2 years (Vehkavuori et al., 2021). Expressive language, however, can be measured with greater accuracy. Vehkavouri and colleagues state that at 18 months, infants typically have an expressive lexicon of 30 - 90 words, increasing to 200 - 350 words by the age of 2 years. They argue that evidence from a number of studies shows that children who are late talkers or who have weak expressive language skills are at risk of later language difficulties which, in turn, negatively affect their reading and writing during childhood and adolescence.

However, it is argued that it is challenging to define exactly what is meant by the construct of expressive language, 'Language and the expression of such is a difficult term to describe because it has a vast connection with children's developmental skills, education and experience...it is about describing how one learns language and learns how to express him/herself the language,' (Frazier, 2011, p.620). Frazier argues that children with expressive language difficulties may experience problems with retrieving lexical items and forming sentences. Limited vocabulary knowledge may cause difficulties in understanding unfamiliar words. Furthermore, Frazier suggests that such difficulties can be linked to general language comprehension difficulties which may also be related to lack of exposure to a range of lexical items and phrases. As children progress through the school years, those with language disorders present with limited vocabulary knowledge, show errors in grammar and language production, poor pragmatic language skills and weaknesses in the understanding and production of narrative (Donolato et al., 2023).

2.3 The impact of social disadvantage on oral language development

There is a strong body of research evidence that shows that children from areas of social disadvantage are at risk of oral language difficulties. Children from disadvantaged backgrounds frequently show poorer language development than children from more privileged backgrounds

(Guo & Harris, 2000; Roulstone et al, 2011). For these children their weak oral language skills impact on the development of psychosocial skills (Norbury et al., 2016) and numeracy (Chow & Ekholm, 2019) and on decoding and reading comprehension skills (Hjetland et al., 2019). Poor language skills in turn affect the development of broader literacy skills (Hulme et al., 2015). Early oral language weaknesses predict later literacy difficulties even when the early language difficulties have been ameliorated (Shanahan, 2006).

Dietrichson et al. (2017) argue that the environment in which a child spends the early years of their life is a key factor in inhibiting children from low socio-economic status (SES) backgrounds from achieving their potential academically. This reflects the findings of earlier studies (Hart & Risley, 1995; 2003) that found that children from disadvantaged backgrounds had more limited vocabulary knowledge than children of the same age from more privileged backgrounds. Furthermore, words were being added at a slower rate for the children from disadvantaged backgrounds.

If language underpins both academic and social development, inequalities in children's exposure to a rich and varied language in the home in the early years places some children at risk of weaknesses in their academic and social development. Hart and Risley (1995), in their seminal study, demonstrated the relationship between parental Socio Economic Status

(SES), and children's cognitive development. Hart and Risley (1995) included measures of SES, as defined by income and educational characteristics such as professional class, working class, or those in receipt of welfare provision, and parental educational behaviour. Parental educational behaviour was assessed in relation to quantity and diversity of language, as measured by a child's experience with the variety of language used by the parent; parenting style, measured by the frequency of a child being asked what to do rather than explicitly told; and parental responsiveness to a child's utterance that did not follow on from a parental initiation.

During a two and a half year period from the age of 7 months to 3 years, observations of 42 families were conducted for one hour per week. Language heard by the child and produced by the child were recorded and analysed in relation to vocabulary and grammatical structure. At the age of three years, 42 children were assessed on verbal competence, a composite of vocabulary growth as determined by the rate at which new words were learnt, and vocabulary use as measured by the number of different lexical items used per hour. Measures of intelligence were taken using psychometric tests of fluid intelligence and crystallized intelligence or knowledge. Analysis of the language used by the parents and the child, together with the results from the standardised tests, demonstrated that children from lower SES backgrounds are exposed to less language input and fewer conversational exchanges with parents. The language used by

lower SES parents was found to be more directive than conversational, a finding shared by later research (Lareau, 2011). Lareau also found that children from middle class homes were exposed to daily language with more words, which were of greater diversity as well as sentences of greater complexity.

A key finding from Hart and Risley (1995) that has inspired policy on both sides of the Atlantic is the '30 million word gap,' the view that in professional households, children hear 30 million more words than children in welfare families. The concerns that this raised led to The Thirty Million Words Initiative in the United States and also Every Child a Talker in England. However, this word gap argument has also sparked strong debate amongst academics.

The first attempt to replicate Hart & Risley's study (Sperry et al., 2019) did not replicate the findings of a significant gap in the vocabulary knowledge of children from higher and lower SES backgrounds. Sperry and colleagues argue that there is a need to look beyond the impact of simply child-directed speech on word knowledge and to include speech more broadly that occurs within the home environment, including overheard speech that has not been directed at the child. Sperry et al. (2019) highlight a number of methodological issues with Hart & Risley (1995), including the fact that only the language directed by the mother to the child was analysed and that the words that children heard being addressed to others in the home

and overheard by the children participating in the study were not recorded.

The failure by Sperry et al. (2019) to replicate the findings of Hart & Risley (1995) have been attributed to weaknesses in research design that resulted in a failure to include children from highly educated homes as Hart and Risley had done (Golinkoff et al., 2019). Golinkoff and colleagues emphasise the crucial importance of child directed speech for not only language development but for the associated benefits of learning about the world, self-regulation and executive function development, and learning how to engage with teachers and other children. Golinkoff et al. (2019) stress that the content of the language interactions matter. Child-directed speech invites children to participate in conversations that have meaning in their world. This is in contrast to overhearing conversations about adult topics that a young child does not have the world experience or interest to be an active participant in. Thus child-directed speech is thought to be most effective in supporting the child's language development. Golinkoff et al. (2019) argue that irrespective of the term we use to define the gap between the vocabulary knowledge of children from higher and lower SES homes, it is evident that children from low SES backgrounds who hear less child-directed language lag behind children from higher income backgrounds in overall language development. Furthermore, they highlight the risks to children already adversely affected by social disadvantage associated with adopting the view put forward by

Sperry et al. (2019), that children from low SES backgrounds have sufficient exposure to high quality language to perform well academically. What matters is not simply exposure, but rather the opportunities for children to be active participants in conversations with parents and carers that focus on the interests of the child (Golinkoff et al., 2019).

Hoff (2013) supports the word gap argument in relation to the English language interactions that children from higher SES backgrounds engage in, and which prepare them for the academic environment of school in which English is the language of instruction. Hoff argues that children who enter school with good oral language skills in English do so through a prolonged experience of engaging in verbal interactions with adults who converse using an extensive, varied, and rich vocabulary using complex grammatical structures. Children from lower SES backgrounds, on the other hand, are more likely to be exposed to language that is more directive, with a narrower vocabulary, and less complex grammatical structures (Hoff, 2013).

The extent to which the word gap argument has been embraced and used to inform policy has raised some concerns (Johnson, 2015). Johnson argues that positive socialisation activities that support both language and cognition in less affluent homes are discounted and not seen to add value to a child's development. Furthermore, he suggests that the word gap argument contributes to a culture of blaming in which 'parents from less

affluent homes are made to feel incompetent and irresponsible because they do not pump their children full of words from the womb,' (Johnson, 2015, p.47).

In spite of criticisms levelled at Hart and Risley (1995), the study has played an important role in the understanding of the impact of low SES status on children's oral language development and subsequent school attainment, on the needs of children of low SES families, on the direction of subsequent research, and on the availability of funding for educational projects to address these needs. Rindermann and Baumeister (2015) set out to assess the claim that low SES is related to weaknesses in cognitive development. Using a path analysis, the data on cognitive and verbal ability from Hart and Risley (1995) was reanalysed and was compared to data from the replication of the Hart and Risley study by Hoff (2003). Their statistical reanalysis demonstrated that, in terms of psychometric measures of intelligence and verbal ability, parental educational behaviour had a greater statistical effect on the Hart and Risley sample than parental SES. This was also true for children's verbal competence at the age of nine years. The robustness of these findings was further strengthened by reanalysing the data from Hoff (2003), using a larger sample than that of the original study by Hart and Risley (1995). Rindermann and Baumeister's (2015) analyses demonstrated that parental educational behaviour was more significant than SES for a statistical explanation of the differences between children's general cognitive ability and verbal ability.

Rindermann and Baumeister (2015) highlight the instructional implications of this reanalysis, and the enhanced knowledge gained of the extent of the impact of parental educational behaviour on children's cognitive development and verbal competence. This adds to our understanding of the specific environmental factors in the home that can be addressed in pursuit of ameliorating problems related to children's developmental trajectories. For example, they propose talking more with children, using a broad range of words and utilizing a variety of sentences with different grammatical structures.

2.4 The importance of vocabulary in literacy development

It is now well established that vocabulary knowledge is a predictor of reading comprehension (Baumann et al., 2004). Biemiller (2005) argues that at Grade 3, Year 4 in England, children are able to decode a greater number of words than they are able to comprehend. A crucial age, important in the context of the present study, is age 8 – 9 years at which stage the greatest factor in reading comprehension and in turn academic achievement is vocabulary, with 25% of English-speaking children being between one and three years below average in vocabulary knowledge (Biemiller, 2012).

The evidence is clear, vocabulary knowledge is crucial to the understanding of spoken and written language. However, the instructional implications of this are complex. Careful, research informed consideration needs to be given to the selection of the vocabulary required for children not only to use and understand spoken and written language, but also to build and extend the spoken lexicon through semantic associations. Furthermore, evidence from robust intervention studies is required to inform the methods by which these words are taught.

Consideration should be given to selecting vocabulary that not only can be learnt by children, but which also has the potential to stimulate the learning and retention of semantically related vocabulary items. Vellutino et al. (1995) investigated children's ability to produce semantically related words in a word association task. Low meaning words, which are defined as words which children had previously heard, did not stimulate the production of a large number of semantically related words on the word association task. High meaning words on the other hand did stimulate a large range of semantically associated words. These high meaning words were not only familiar to the children but were also likely to be part of the children's spoken vocabulary. Guided by these findings Vellutino et al. (2004) suggest that children will experience less difficulty in the reading of words that exist in their spoken vocabulary than in words that lie outside this domain. They argue that simulated reading tasks have shown that both normal readers and children with reading impairments experience

difficulties in establishing connections between low meaning words and their orthographic representations than they do with high meaning vocabulary items in written form.

This has important implications for the selection of vocabulary in oral language interventions. It appears that it is not only important to address the vocabulary deficit in children with language weaknesses in order to facilitate comprehension of oral and written language, but to select vocabulary items that have utility across multiple contexts, and which stimulate the production of semantically related words (Beck, McKeown & Kucan, 2013). Nation and Snowling (1998) argue that weaknesses in vocabulary limit the ability to create semantic links between words. Oral language interventions therefore afford the opportunity to break this cycle by directly teaching high meaning words alongside instruction and practice in the use of strategies to stimulate far transfer of newly acquired vocabulary.

Exposure to a rich and varied vocabulary is crucial then for the development of expressive language skills and in turn on the development of reading and writing competencies. However, vocabulary learning does not exist within a vacuum in children's language and literacy development. Indeed, vocabulary knowledge directly impacts on the development of children's grammatical and syntactical skills (Dockrell et al., 2023). A significant body of vocabulary must be acquired for grammatical skills to

develop and be applied to language use. Dockrell and colleagues argue that 'Vocabulary knowledge provides a foundation for learning and producing syntactical structures' (Dockrell et al, 2023, p.14). The increase in vocabulary acquisition and syntactical structure production are inextricably linked. Growth in oral language skills in the early phase of childhood supports the continued expansion of vocabulary and growth in understanding implicitly how the rules of grammar operate (Massonnié et al., 2022).

Vocabulary knowledge is clearly an important factor in decoding and reading comprehension. However, it is not simply acquiring a mass of words in the mental lexicon that supports reading and understanding of what has been read. The development of a wide receptive and expressive vocabulary, or vocabulary breadth, is crucial for the development of language and literacy skills (Dockrell et al., 2023). Dockrell and colleagues argue that vocabulary depth is also vitally important, that is, that children develop an understanding of the semantic relationships that exist between words.

Vocabulary breadth and depth play important but differing roles in reading development (Ouellette, 2006). Ouellette suggests that children's sensitivity to sublexical information increases as they add more vocabulary items to the lexicon. This in turn promotes an increase in phonemic awareness. In this way, the breadth of a child's vocabulary (i.e. the more words they add

to their lexicon) influences decoding. Vocabulary depth, on the other hand (i.e., the strength of the semantic representations), influences reading comprehension.

Understanding individual words is crucial for understanding spoken and written language. The breadth of vocabulary has been shown to be one of the strongest predictors of comprehension (Ouellette, 2006; Ricketts et al., 2007). Nagy (2005) describes the reciprocal model between vocabulary and reading comprehension whereby knowledge of word meanings supports comprehension of texts and in turn text comprehension supports the development of broader knowledge of word meanings. In a systematic review of research examining the relationship between vocabulary knowledge and comprehension of written text, it was found that in almost all studies analysed instruction of word meanings supported comprehension of text containing the taught vocabulary (Wright & Cervetti, 2017).

2.5 Oral language and reading

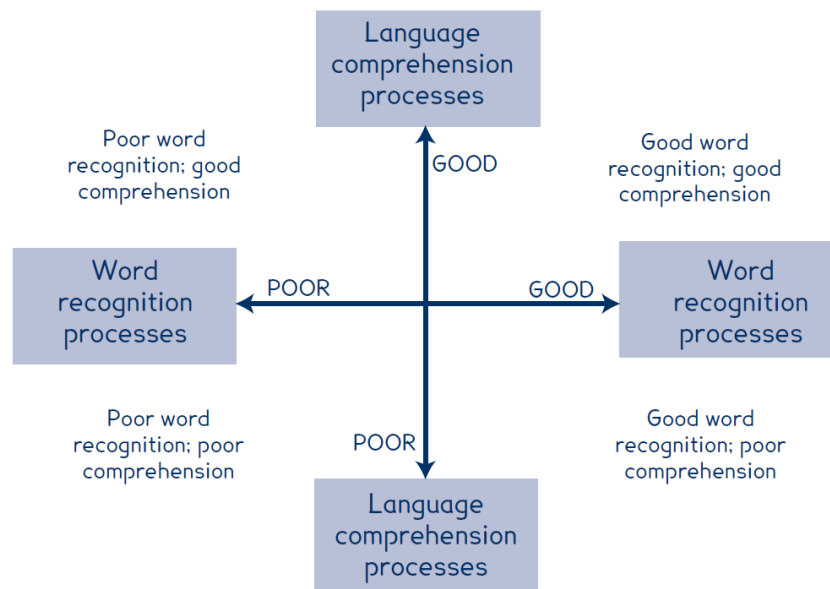
It is evident then that oral language, in particular, vocabulary skills play a crucial role in early development, socially and academically. Oral language is central to the development of pre-literacy and literacy skills and underpins reading development. However, it is not the only factor involved in the complex process of acquiring reading skills. Research over the past 35-40 years has sought to understand the processes involved in skilled

reading. The most important models that have been developed through this research and that have informed both theory and the teaching of reading will now be explored.

2.5.1 The Simple View of Reading

The Simple View of Reading (Hoover & Gough, 1986) proposes that skilled reading is the product of accurate decoding and good oral language comprehension. The Simple View of Reading (SVR) is presented as a model with four quadrants (see Figure 2.3 below) which describe the four types of reader based on the mastery of the component skills, decoding and language comprehension.

Figure 2. 3. *The Simple View of Reading – Different patterns of Performance (Rose, 2009)*



To be an effective and efficient reader, a child must have good decoding skills and good language comprehension. However, children may not have

these skills intact, leading to different profiles of reading difficulties. Poor word recognition but good language comprehension is frequently associated with a dyslexic profile. Readers with good word recognition with poor language comprehension are often described as 'poor comprehenders' (Clarke et al., 2010b). Children with both poor word recognition and poor language comprehension have been described as 'garden variety poor readers' (Stanovich, 1988).

The SVR provides a framework for teachers to broadly profile readers, which then supports implementation of teaching and targeted intervention to address reading at the appropriate source of any difficulties. Although first promulgated almost forty years ago, the SVR continues to influence training for teachers and targeted instructional practices. Despite the continued use and influence of the SVR, it has received some criticism for being unable to fully explain the processes and balance of processes involved in skilled reading. It is argued that the relationship between decoding and language comprehension and their relative influence on reading comprehension vary as children progress through school, variations that cannot be accounted for by the model (Catts, 2018). Catts suggests that in the early school years, most variance in reading comprehension is explained by decoding ability. However, in the later school years the balance shifts, and language comprehension takes a superior role. He argues that it is to be expected that in early reading, decoding skills drive reading comprehension. Catts proposes that when

decoding ability increases in both speed and automaticity, at approximately the age of 8 to 10 years for typically developing readers, vocabulary and grammar place greater demands on the young reader.

Catts (2018) stresses the importance of the contribution that the SVR has made to understanding not only of the processes that reading comprehension involves, but also how children with reading difficulties can be classified. However, he suggests that the model oversimplifies and should, therefore, be updated to recognise the complexity and multi-dimensionality of reading comprehension.

The SVR, then, is generally recognised as a useful, broad framework for explaining the processes involved in reading, but research has highlighted some shortcomings of the model. It is proposed that the term 'decoding' is broad and fails to clearly explain how this construct can be measured (Kirby & Savage, 2008). Kirby and Savage question whether decoding simply refers to accurate word reading or is also concerned with the fluency of accurate word reading. They suggest that decoding may be accurate, but also very slow and, thus, that laboured decoding may compromise efficient comprehension. Decoding that is slow and requires excess effort makes greater demand on cognitive resources, thereby limiting the working memory capacity available to aid comprehension. Kirby and Savage argue that skilled reading requires fast and accurate decoding and, therefore, the SVR should take account of reading fluency.

The broad and somewhat vague construct of listening comprehension in the SVR has also raised some concerns (Ouellette & Beers, 2010). They argue that with much evidence highlighting the role that oral language, in particular vocabulary and semantic knowledge have in reading comprehension, it is unclear in the SVR whether the role of vocabulary and semantic knowledge are encompassed within the listening comprehension component. The findings from Ouellette and Beers (2010), a study of children in Grades 1 and 6 assessed on decoding, phonological awareness, vocabulary, irregular word recognition, listening comprehension and reading comprehension, demonstrate that oral language is important not only for the listening comprehension dimension of the SVR, but also for the decoding dimension and the recognition of irregular words, indicating that a less simple view of reading framework is needed to reflect developing understanding of the complex processes involved in reading and reading comprehension. Ouellette and Beers argue that once children have become proficient in word reading, vocabulary takes on a particularly important role that deserves to be specifically noted in the oral language dimension of the SVR.

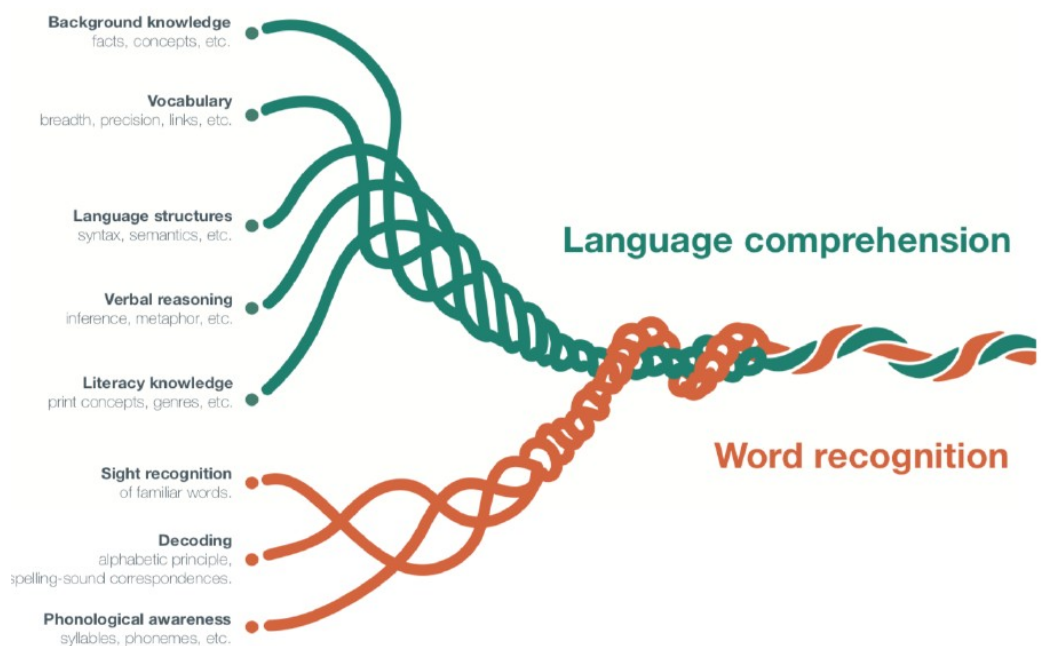
Braze et al. (2007) go further to suggest that decoding and spoken language skills are important for reading within the SVR. They propose that vocabulary knowledge plays a principal role within this, not only for understanding spoken language but also for decoding. Deficits in word knowledge can reinforce decoding weaknesses, leading to profound

difficulty with the identification of printed words. Mindful of this, Braze et al. (2007) recommend that vocabulary teaching should form a part of reading instruction.

2.5.2 The Reading Rope

Despite the limitations of the SVR, it should be noted that was designed to be a 'simple' framework to explain the core skills involved in skilled reading. As such, it has provided a strong foundation for the development of subsequent models of reading that continue to drive research and inform teaching and intervention for children with and without reading difficulties. Scarborough's Reading Rope (Scarborough, 1990) adopts the two dimensions of the SVR and considers the component skills within each dimension (see Figure 2.4 below).

Figure 2. 4. *The Reading Rope (Scarborough, 1990)*



Scarborough argues that during the process of becoming a skilled reader, the main strands of the reading rope become intertwined. She suggests that the strands related to the decoding of individual words are often viewed as separate from understanding their meanings. However, in the Reading Rope, these processes are seen as interactive in how they function and in how the skills develop.

The sub-strands of the word recognition dimension of the Reading Rope involve the recognition at sight of familiar words, decoding and phonological awareness. Language comprehension involves the activation of background knowledge, vocabulary knowledge including breadth and depth, and the ability to make semantic links between words. Language structures play a key role involving syntactic and semantic knowledge. Inferential and figurative language understanding are positioned within the verbal reasoning strand. Finally, literacy knowledge and an understanding of how print works across a range of genres supports language comprehension. Progression in reading in the Reading Rope is shown by increasing strategic language competencies and increasing automaticity in the recognition of individual words (Wyse & Hacking, 2024).

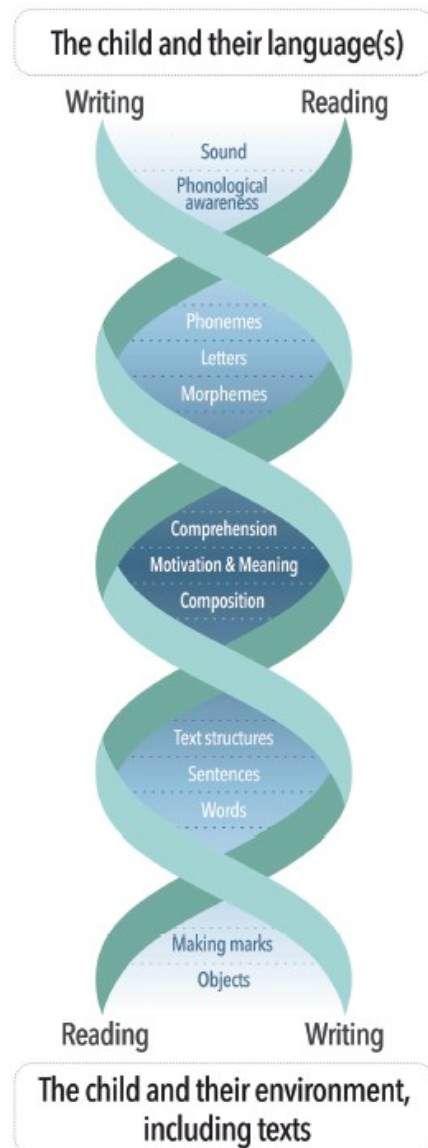
Scarborough (1990) notes that in general reading difficulties are linked to weaknesses in decoding, phonemic awareness and sight word reading. However, even if children can accurately decode, they will struggle to comprehend if they lack knowledge of the spoken form, the semantic and

syntactic relationships between words, or the background knowledge that facilitates inferring meaning. This is particularly evident when texts become more complex, normally after the age of 7 years. Scarborough proposes that these types of difficulties are related to oral language weaknesses.

2.5.3 The Double Helix of Reading and Writing

Drawing on previous models, a new model, The Double Helix of Reading and Writing has recently been proposed (Wyse & Hacking, 2024). The Double Helix theory and model for reading and writing instruction builds on the SVR and the Reading Rope. As with these two earlier models, the individual components of the Double Helix and the inter-relationship between them are represented visually (see Figure 2.5 below).

Figure 2. 5. *The Double Helix of Reading and Writing* (Wyse & Hacking, 2024)



A novel aspect of Wyse and Hacking’s model is that it includes both reading and writing, acknowledging research (Shanahan, 2006; Graham, 2020) of the inter-relationship between these two skills, and promoting the view that these processes should not be separated in instructional practices due to their reciprocal relationship. Although the Double Helix is primarily a model for teaching reading and writing, it further develops understanding

of the core components of reading development, thereby extending earlier models.

Of particular importance to the present study, the top of the model, the Child and Their Language(s), acknowledges the primary role that oral language plays in reading development. Wyse and Hacking (2024) draw attention not only the child's oral language development, but the language interactions that occur between the child and others in the home and the wider community. Wyse and Hacking emphasise that human interlocution is driven by the need to communicate meaning to others. A further novel aspect of Wyse and Hacking's interactive model is that it includes the impact of motivation on children's reading and writing development. This feature has important instructional implications for literacy teaching in the classroom.

2.6 Oral language and writing

Research on the relationship between oral language skills and writing (Shanahan, 2006) has shown that oral language skills and vocabulary are predictors of the quality and quantity of written text production. It is argued that oral language production requires similar knowledge and involves similar processes to written production of ideas (Sperling, 1996), and that children with oral language difficulties will experience difficulties with writing. Weaknesses in phonological and morphological knowledge lead to difficulties with text generation, and problems with higher order

language skills, such as inferencing and figurative language, affect the process of planning and revising written text (Troia et al., 2011).

Oral language skills at pre-school at kindergarten have been found to predict quality of written narrative at third grade. (Kim et al., 2015). A recent meta-analysis examining whether children classified as having Specific Language Impairment (SLI) have writing difficulties (Graham et al., 2020) provided strong evidence that oral language difficulties adversely affect writing performance. Access to vocabulary is both restricted and slow, affecting the quality of writing, lexical diversity, and quantity of text produced. Weaknesses in oral language fluency were found to correspond to both the quantity and cohesion of written texts.

It is expected that children with SLI will experience significant writing production difficulties, particularly in the areas of lexical selection and lexical diversity (Dockrell & Connelly, 2013). Although the current study focuses on children with oral language difficulties who would not meet the criteria for SLI classification, these findings have important implications for practice and intervention. Graham et al. (2020) highlight the reduced quantity of text production of children with identified poor language skills, which have been observed alongside weaker text quality, limited lexical diversity and grammar miscues. Graham (2020) argues for a range of approaches to be used in the instruction of writing. For example, teaching pupils how writing can be used to think about and analyse the texts they

are reading, and for students to examine how a text has been constructed before applying a similar structure to their own writing. Graham suggests that research needs to focus on the inter-relationship between oral language and written composition in both whole class teaching and in targeted interventions. Interventions need to focus on oral language skills and how the breadth and diversity of vocabulary and figurative language can be transferred to the composition of written narrative. Of particular interest to the present study is the recommendation (Dockrell & Connelly, 2013) that research should focus on how the non-phonological limitations on written text production of children with SLI can inform intervention focused on improving writing. As vocabulary knowledge is seen to be a crucial factor in the quality of written text, it is plausible that interventions targeting vocabulary should improve the quality of children's writing and the diversity of words generated.

Spencer and Petersen (2018) investigated the impact of oral narrative instruction on narrative writing with first grade pupils, finding that oral narrative intervention focusing on story grammar improved written narrative quality. Although a small study that did not undertake language assessment pre-intervention, this study provides support for further research examining the links between a multi-component oral language intervention which includes vocabulary instruction focusing on the use of flexible strategies to solve word meanings and the exploration of narrative

structures across a range of genres and the generation of individual oral narratives.

2.7 The current context: Policy and practices in the teaching of reading in England

The Early Years Foundation Stage Statutory Framework (DfE, 2024) provides the standards for learning, development and care provision for children from birth to the age of five years. Across the curriculum areas, there is a strong emphasis placed on communication and language. The framework highlights the extent to which children's spoken language development provides the foundation for each of the seven areas of learning. These seven areas are: communication and language; personal social and emotional development; physical development; literacy; mathematics; understanding the world, and expressive arts and design. The importance of a language-rich learning environment is central to the framework, 'Through conversations and storytelling and role play, where children share their ideas with support and modelling from their teacher, and sensitive questioning that invites them to elaborate, children become more comfortable using a rich range of vocabulary and language structures' (p.9).

Although a focus on spoken language is maintained in the National curriculum for English programmes of study (DfE, 2013) in Key Stages 1 and

2 (ages 5 – 11 years), there is no explicit teaching of or assessment of oral language skills. The programmes of study contain a broad set of 12 statutory requirements for spoken language from Year 1 to Year 6 that focus on listening, speaking, vocabulary building and articulation of ideas, perspectives, and participation in a range of spoken group activities.

2.7.1 The teaching of early reading

The findings of the Rose Review (Rose, 2006) into the teaching of early reading, commissioned by the government, led to the requirement that schools implement phonics instruction using a synthetic phonics approach. Synthetic phonics is the systematic and explicit teaching of the correspondence between letters (graphemes) and sounds (phonemes) (Bowers, 2020) . It involves children first learning the sounds or phonemes in isolation. Once mastered, children then learn how to blend the phonemes together to form words (Machin et al., 2018).

Rose (2006) states that in the classroom practice analysed by the review, the most effective approach for skilled reading and writing was the systematic approach, which, he argues is understood to be synthetic phonics. Rose states that, 'Having considered a wide range of evidence, the review has concluded that the case for systematic phonics is overwhelming' (p.20). He recommends, therefore, that phonics should be taught discretely. Almost 20 years since the Rose Report (Rose, 2006),

there is continued support for the use of synthetic phonics for the teaching of reading in primary schools.

Literacy researchers have expressed concerns about adopting a synthetic phonics only approach to support the development of reading skills. Wyse and Goswami (2008) highlight the absence of reliable evidence from empirical studies that synthetic phonics is the most effective approach for early readers. Wyse and Goswami argue that although discrete phonics taught systematically can be effective, there is evidence also of the efficacy of contextualised phonics teaching. A tertiary review 10 years after Rose (2006) (Torgerson et al., 2019) acknowledges that the evidence reviewed suggests that teaching for younger readers should include a systematic approach to phonics teaching but argue that there is insufficient evidence justify a reading policy that associated the teaching of only phonics. Some of the studies consulted taught phonics within a whole language framework, indicating a balanced instructional approach.

These voices are not alone in their concerns about a systematic synthetic phonics only approach. On the basis of a review of 12 meta-analyses evaluating the effectiveness of synthetic phonics and a summary from all state maintained schools in England on the outcomes of teaching children to read using synthetic phonics since 2007 (Bowyers, 2020) it is suggested assert that there is at best minimal evidence that synthetic phonics produces better outcomes than other instructional approaches which

include whole language and balanced literacy teaching. Bowyers suggests that the reading wars 'that pitted systematic phonics against whole language is best characterised as a draw,' (Bowers, 2020, p.23).

The call for proponents of the synthetic phonics only approach to lay down their arms and accept that other methods have also been found to be effective in the teaching of reading is supported by others in the field with extensive teaching and research experience of reading instruction (Wyse & Bradbury, 2022). The findings of Torgerson et al. (2017) tertiary review are supported by the analysis of a systematic meta-analysis of 55 experimental trials and a survey of 2,205 primary teachers in England. Wyse and Bradbury did not find sufficient research evidence underpinning phonics approaches for reading instruction in primary schools. They argue that the National Curriculum for English (DfE, 2013) can be seen as an outlier when compared with the national curricula of other countries where English is the dominant language, that adopt balanced instruction or whole language approaches. An analysis of the Programme for International Student Assessment (PISA) data by Wyse and Bradbury suggests that since synthetic phonics was introduced, the teaching of reading in schools in England has been less effective. They advocate greater collaboration between policy makers, practitioners and researchers to develop curriculum, policy and pedagogy and call for a reconciliation in the reading wars (Wyse & Bradbury, 2022).

In recognition of the extensive research demonstrating the crucial role that oral language skills play as the foundation for the development of reading and writing skills (Snowling & Hulme, 2016) the Primary National Curriculum (DfE, 2013) includes a specific focus on the teaching of spoken language skills. However, there is also a strong emphasis in Key Stage 1 on the teaching and assessment of phonological skills to ensure that weak decoding skills are identified early through the Phonics Screening Check (PSC) and appropriate intervention is put into place.

The PSC was introduced in 2012 to screen all children in Year 1 in England. The focus is on assessing the ability of children aged 5 - 6 years to decode decontextualized words and pseudo words (DfE, 2010). Designed to ensure that children with decoding difficulties are identified early and provided with additional phonics teaching and appropriate interventions where necessary, the PSC attempts to avoid the wait to fail approach for young literacy learners. However, the PSC has attracted criticism amongst experts in literacy teaching and research. The National Foundation for Educational Research (NFER) was commissioned by the government to evaluate the impact of the PSC on attainment in literacy (Walker et al., 2015). Their findings suggested that literacy attainment was not improved by the PSC. Darnell, Solity and Wall (2017) question whether the PSC is an appropriate measure of the skills involved in early reading.

Considered in the light of the Simple View of Reading the instructional and assessment emphasis on phonics in Key Stage 1 classes in England means that the decoding skills required for accurate word reading is prioritised, potentially leaving those children with good decoding skills but weak linguistic comprehension at risk of being overlooked and not offered appropriate evidence-based interventions. Some children who meet the required standard in Year 1 or on retest in Year 2 to pass the phonics screening may have the appropriate decoding foundations to develop well as readers, but attention should continue to focus also on the language and reading comprehension skills required for skilled reading.

It appears that in the current educational context, detecting children with oral language weaknesses and comprehension difficulties, including those for whom English is an additional language, is challenging for teachers as these difficulties can be overlooked if the sole focus of teaching early literacy is on decoding skills. Indeed, it is argued that the difficulties experienced by children with good decoding skills, but weak language comprehension do not become evident until children are in the third or fourth year of primary school (Oakhill et al., 2015). Early years reading material places limited demands on comprehension and focuses heavily on supporting the development of decoding skills. The increasing complexity of the texts that children encounter as they progress through school and the shift from the mechanics of learning to read to the employment of broader language skills to understand meaning of written texts, leads some

children with poor comprehension to present with unexpected reading difficulties (Catts et al., 2012). Therefore, by the time that reading comprehension difficulties become apparent in Key Stage 2, opportunities may have been missed to intervene early to reduce their potential adverse effects on academic attainment. A potential solution to this would be to screen all children in Key Stage 1 on both dimensions of the Simple View of Reading, decoding through the phonics screening check and language comprehension using a short teacher or teaching assistant administered language assessment such as LanguageScreen. LanguageScreen has been demonstrated to be effective in identifying children with oral language difficulties who will require intervention to develop their language skills and comprehension (West et al., 2020).

If children are to become skilled readers and effective communicators in spoken language a range of skills are required. In order to understand spoken and written language, children need to have an understanding of language at the individual word level and also of the grammatical structures within which the words are situated. The National Reading Panel (NRP, 2000) recommended that reading instruction should adopt a holistic approach to include instruction in phonological awareness, phonics, text reading and fluency, vocabulary and the teaching of comprehension strategies matched to the needs of individual pupils.

Reading to children also plays an important role in providing valuable exposure to spoken language (Treiman, 2018). Treiman suggests that reading to children provides an insight into more complex language than may normally be provided in the course of general spoken interactions. This complex language from written texts can support the development of spoken language skills which provide the foundation for reading and promote reading comprehension skills (Snowling & Hulme, 2016).

Language structures have been found to influence reading development. In a study examining the language abilities of 52 children from families with a history of dyslexia or reading difficulties (Scarborough, 1990), children from families with a history of dyslexia or reading difficulties who developed as normal readers were purposefully selected to closely match the children who went on to develop dyslexia. They were matched on measures of IQ, SES and gender. Scarborough proposed that deficits in the early structures of a child's language could impact on the quality of the language models provided by their conversational partners or could potentially inhibit the child's engagement in early pre-school activities that were dependent on language ability. Scarborough argues that these structural language difficulties could affect the acquisition of vocabulary, memory processing and awareness of language.

The view that the underlying language structures are instrumental in reading development is shared by Catts (1997) who suggests that it is

frequently the case that reading difficulties have a language base, and that therefore, by assessing language at the pre-school stage there is an opportunity to identify children at risk of reading difficulties before waiting for them to fail. Catts highlights the wider impact of not taking a pro-active, preventative approach on children's reading motivation, expectations of their own abilities and crucial practice in reading-based activities. Catts suggests that reading disorders are closely related to oral language development and difficulties in expressive morphology, syntax and difficulties with language comprehension at the word and sentence level.

Oral language has been shown to be a crucial factor in reading development. Oral language affects phonological awareness and therefore it is proposed that for children at risk of reading difficulties, intervening in the first instance to improve a child's oral language may be effective, 'Unless we address the oral language weaknesses of children at risk of reading problems we will only ever find the imperfect solution to the remediation of dyslexia,' (Snowling, 2014, p.53).

2.8 Oral language and writing

Research on the relationship between oral language skills and writing (Shanahan, 2006) has shown that oral language skills and vocabulary predict the quality and quantity of written text production. It is argued that oral language production requires similar knowledge and involves similar processes to written production of ideas (Sperling, 1996), leading some

children with oral language difficulties to experience difficulties with writing. Weaknesses in phonological and morphological knowledge lead to difficulties with text generation. Additionally, problems with higher order language skills, such as inferencing and figurative language, affect the process of planning and revising written text (Troia et al., 2011).

Oral language skills at pre-school at kindergarten have been found to predict quality of written narratives at the age of 8 – 9 years (Kim et al., 2015). A recent meta-analysis investigating whether children classified as having Specific Language Impairment (SLI) have writing difficulties (Graham et al., 2020) confirmed the association provided between oral language difficulties and weak performance in writing. The quality of writing, diversity of words used, and the quantity of writing produced are affected by the slow and restricted access to vocabulary in children with oral language difficulties. Weak oral fluency skills further impact on writing quality affecting the cohesion and quantity of writing produced (Graham et al., 2020).

Although it has been shown that oral language underpins the narrative production, attention has been drawn to the limited research examining the precise aspects of writing affected by children's oral language difficulties (Dockrell et al., 2012). Analysis of children's writing showed that language weaknesses affect the quantity of text produced, the quality and complexity of sentence structures, and the organisation of written

composition. Restricted vocabulary affects the generation of ideas in writing (Dockrell et al., 2012).

Children with SLI will experience significant writing production difficulties, particularly in the areas of lexical selection and lexical diversity (Dockrell & Connelly, 2013). Although the current study focuses on children with oral language difficulties who would not meet the criteria for SLI classification, these findings have important implications for practice and intervention. Graham et al. (2020) highlight the reduced quantity of text produced by children with identified poor language skills, which has been observed alongside weaker text quality, limited lexical diversity, and grammatical miscues. They argue for a range of approaches to be used in the instruction of writing. The results also suggest that research needs to focus on the inter-relationship between oral language and written composition in both whole class teaching and in interventions. Interventions need to focus on oral language skills and how the breadth and diversity of vocabulary and figurative language can be transferred to the composition of written narrative. Of particular interest to the present study is the recommendation (Dockrell & Connelly, 2013) that research should focus on how the non-phonological limitations on written text production of children with SLI can inform interventions focused on improving writing. As vocabulary knowledge is seen to be a crucial factor in the quality of written text, interventions targeting vocabulary plausibly stand to improve the quality of children's writing and the diversity of words generated.

2.9 Assessment of literacy skills

Approaches to the assessment of language, reading and writing skills will now be examined.

2.9.1 Assessment of language skills

At the end of the Foundation Stage (FS) in England (Reception year when children are aged 4 – 5 years), teachers are required to assess all children using the Early Years Foundation Stage Profile (EYFSP) (DfE, 2023c). The EYFSP is a statutory assessment of a child's progress by the age of 5 years. Reception class teachers are required to collect evidence to support their professional judgement, 'to make a holistic best-fit judgement about a child's development at the end of EYFS, and their readiness for Year 1', (DfE, 2023c, p.11).

Although it is widely accepted, including in the DfE EYFS framework, that language and communication underpin all areas of learning in the FS, in the specific communication and language domain, children are assessed against Early Learning Goals (ELGs) in listening, attention, and understanding and speaking. With appropriate training, teachers have been found to make valid judgements of children's language development (Snowling et al., 2011). However, screening tools based on the EYFSP may potentially only account for approximately 50% of the differences that exist between children, risking a significant number of children failing to have

their difficulties identified (Snowling et al., 2011). Snowling and colleagues argue that screening should be positioned within an overall formative assessment framework that can aid and develop teachers' skills and knowledge in understanding children's language and communication.

Outside of statutory assessment instruments, a range of screening and diagnostic assessment measures can be used where concerns from parents and teachers suggest that a child may have weaknesses or particular problems with their language development that warrant further investigation. It is important that practitioners fully distinguish between screening and assessment as they are very distinct from each other and have different purposes and different strengths and limitations. Diagnostic tests provide clear information about whether an individual presents with or without a particular condition (Trevethan, 2017). Trevethan argues that screening tests when compared to diagnostic tests are less demanding on service structures and systems, in addition to being cheaper, less time consuming and less uncomfortable psychologically for individuals. Among the more widely acknowledged limitations of screening instruments, however, are their imprecision and potential to deliver ambiguous results (Trevethan, 2017).

Given what is known about the importance of oral language skills for literacy development, and academic and long-term outcomes, therefore, it is vital that children with underlying language difficulties are identified, and

that appropriate high quality teaching and intervention is implemented and monitored in line with the graduated response in the SEND CoP (DfE/DoH, 2015). The absence of any formal testing of children's language abilities after the Foundation Stage, meaning that children's language is never formally tested in the primary or secondary National Curriculum Years, renders the availability of language assessments of vital importance.

Screening offers the opportunity to identify children's language difficulties.

Test characteristics, such as sensitivity and specificity are crucial to minimise errors in results which are used to determine treatment.

However, highly sensitive tests come with a risk of overdiagnosis. That is, while we can be confident that a highly sensitive test correctly identifies all people with the condition, there is a risk of people wrongly being identified as having that condition when they don't (i.e. produce false positives).

Specificity on the other hand, reflects the ability of a screening instrument to correctly identify those who do not have a particular condition. Highly sensitive tests come with the opposite risk. That is, while we can be confident that each person identified as having a condition will genuinely have it, the test may miss people (i.e. produce false negatives). Relating this to language difficulties, a screening instrument that has high levels of sensitivity can reliably identify children who have language difficulties.

Specificity in screening instruments would identify those children who do not have a language difficulty (Dockrell & Marshall, 2015). Getting the

balance between sensitivity and specificity is, therefore, crucial to the development of a test that is fit for purpose.

Screeners should be used with some caution due to risk of errors in results.

A recent north American review of screening instruments designed to identify children with Developmental Language Disorder (DLD) found that of the 15 screeners reviewed, only 10 manuals included the range for sensitivity (70% - 100%) and specificity (68% - 90%) (Bao et al., 2024). The criteria used in the Bao et al. study classified screening instruments with sensitivity and specificity at 90% or above as having good accuracy, 80 – 89% were deemed to have fair accuracy, and an unacceptable rate of accuracy was given to tests with sensitivity and specificity falling to 80% or below. However, it has been argued (Dockrell & Marshall, 2015) that despite screening instruments being required to adhere to minimal standards of sensitivity and specificity, in reality a trade-off between sensitivity and specificity is likely in practice. Dockrell and Marshall suggest that a test with poor sensitivity that fails to identify those children with language difficulties may have greater short and long term consequences for a child and for their academic outcomes. A test with poor specificity may lead to the incorrect identification of language difficulties in children who do not in fact have language weaknesses, leading to inefficient use of resources and potential distress for children (Dockrell & Marshall, 2015).

If the recommended early identification of language difficulties and appropriate early intervention to ameliorate those difficulties is to become common practice in schools, it is vital that reliable language screening instruments are available to school practitioners from the early years and throughout the primary school years. It is concerning that due to methodological shortcomings in many studies of language screening tools, there is not yet sufficient evidence for any language screening tool to be recommended (So & To, 2022). So and To argue that 'the limited number of valid tools may partially explain why screening for language disorder has not been adopted as a routine surveillance exercise in primary care, in that the use of any one type of screening tool may result in a considerable amount of over-identification and missing cases, which can lead to long-term social consequences,' (p.16). So and To recommend that efforts should focus on the design of the screening items and should include sensitivity to the dynamic way in which language develops.

The accurate administration of many tests involving composite measures of language ability restrict their use to professionals with specialist qualifications such as Speech and Language Therapists and Educational Psychologists, or to specially trained and appropriately qualified researchers. Therefore, most language testing instruments available to primary teachers without a specialist qualification involve the assessment of individual core language skills, such as vocabulary, grammar and syntax, and less commonly (Dockrell & Marshall, 2015) the assessment of oral

narrative skills. Dockrell and Marshall argue that vocabulary tests offer speed and ease of administration but have limitations in that they assess only one core aspect of language. Therefore, caution should be exercised in the conclusions drawn from the results regarding general language ability.

Concerns have also been raised that children with language difficulties do not always perform poorly on tests of vocabulary (Spalding et al., 2013).

Spalding and colleagues suggest that this may be related to the way in which a child is frequently simply required to identify from a set of four pictures that corresponds the label provided. This may miss the opportunity to accurately assess the depth of vocabulary knowledge.

Spalding et al. (2013) advocate a move from static forms of vocabulary assessment to a more dynamic form of assessing how a child is learning lexical items.

2.9.2 Assessment of reading

Children's reading is assessed using national summative assessments at the end of the Foundation Stage, Key Stage 1 and Key Stage 2. At the end of the Foundation Stage, children reading at the expected level should be able to produce the sound for each letter in the alphabet in addition to a minimum of 10 digraphs. In line with their phonic knowledge, children should be able to blend sounds to read words. Consistent also with their current phonic knowledge, children at the expected level should be able to

read simple sentences and books aloud, and to read some words from the common exception word list.

In line with the recommendations of Rose (2006), children in Years 1 and 2 are taught to read using synthetic phonics, children who will be aged 6 years by the end of their Year 1 school year are then formally assessed in June in Year 1 using the Phonics Screening Check (PSC). As with Foundation Stage Profile outcomes, the PSC results for schools are reported and available publicly. This test requires children to read a set of 40 words that include real words and non-words. Parents are advised that the test is designed to aid teachers in assessing children's progress in phonic knowledge and to support the identification of children who may need further support in Year 2. Children who do not pass the PSC are re-tested at the end of Year 2.

At the end of Year 2, children's reading is assessed using Standard Assessment Tasks (SATs) Unlike the early years assessments and PSC, the Key Stage 1 reading SATs are optional and designed to aid teachers to identify pupils who require additional support as they transition into Year 3, the first year of Key Stage 2. The DfE are keen to stress that the Key Stage 1 reading tests are an assessment of a child's reading comprehension, and that content related to decoding is not included as this is formally assessed through the PSC. The SATs reading tests are

internally marked by teachers, and schools are not required to report results to the local authority.

Similarly in Year 6, at the end of primary schooling, children's reading is assessed formally in the Key Stage 2 reading test. As with the Year 2 reading SAT, the test primarily tests children's reading comprehension and can be used to facilitate identification of children who may require additional support on transition to secondary school. Children are required to read three pieces of writing (fiction, non-fiction and poetry) and to respond in writing to questions about what they have read. The number of children attaining the required level in reading is reported nationally.

2.9.3 Assessment of writing skills

Assessment of children's writing in the early years is undertaken using the Early Years Foundation Stage profile. To meet the criteria of 'working at the expected level', children should be able to write letters that are recognisable and generally correctly formed, to identify the sounds in words and to use these to spell words by representing sounds with letters, and to write simple sentences or phrases that others can read. Early years teachers are required to collect the evidence that demonstrates whether a child is meeting the expected level, is below or exceeding this level.

Assessment of writing at the end of Key Stage 1, the end of Year 2, follows the same model of teacher assessment. Teachers are provided by the DfE

with a series of statements and are required to use evidence from pupils' writing to make a professional judgement as to whether pupils are meeting the expected level in writing, are working below this level or exceeding this level and working at greater depth.

Formal assessment of writing at the end of Key Stage 2 also involves teacher assessment against three standards of attainment as set out in the English Writing Framework Statements introduced by the DfE in 2017/18. Teachers are required to use their professional judgement about children's independent writing across the curriculum to decide the level at which a child is writing. They use the same descriptors as at the end of Key Stage 1. Writing judgments are moderated within and across schools, with 25 % of schools each year engaging in a statutory external moderation process to ensure that judgments of performance align with national standards.

The use of these national curriculum assessments and the judgements that they provide has drawn some criticism. For example, Bradbury et al. (2021), argue that including data in national test league tables creates competition between schools and fear among headteachers about achieving poor results. Bradbury and colleagues express concern about the impact on lower attaining pupils who may perceive themselves as failures due to not meeting expected levels and the disappointment caused to parents. Furthermore, current forms of national testing are more concerned with ascertaining whether children are achieving the nationally

expected standard in writing than understanding individual writing profiles. While the outcomes may identify children who are in need of additional support or intervention, they do not provide the detail required to support with informing teaching and intervention.

Establishing evidence that oral language interventions can improve writing skills relies then on the use of appropriate writing assessment measures. Bazerman et al. (2017) argue that due to the complexity of the writing process and the experiential and instructional factors affecting written composition, pupils in the same classrooms demonstrate a variation in their profiles of strength and weaknesses not only in different areas of writing, but also in writing across different genres. They argue therefore that writing assessments that are adopted must take account of the range and variations in writing development.

It is evident that in evaluating whether an intervention aimed at improving oral language skills and the understanding and application in spoken language of a diverse range of vocabulary transfers to the composition of written narrative, an appropriately sensitive writing assessment instrument is required. An investigation of the reliability and validity of writing assessments (Rezaei & Lovorn, 2010) highlights the challenges involved in creating reliable measures for assessing text quality. Accurate scoring of written composition has been found to be difficult (Graham et al., 2011) with holistic scoring, scoring that takes an overall assessment of a piece of

writing, and analytic scoring, scoring that assesses individual aspects of writing, methods being found to be reliable in less than 50% of the studies examined.

In response to the need for a valid and reliable writing assessment that can be easily administered and that has the potential for informing intervention, a Curriculum Based Measure for Writing (CBM-W) was developed and evaluated for use with Key Stage 2 pupils (Dockrell et al., 2014). Pupils wrote for 5 minutes in response to a narrative probe and for 5 minutes in response to an expository probe. The analysis in the CBM-W study focused on productivity, measured by the total number of words produced, quantity of correct word sequences number of punctuation marks used, and total complete sentences written. Accuracy was measured in relation to correct spellings, full form, punctuation marks used correctly and number of grammatically correct sentences. Sensitivity to improvements over time were detected and therefore this is useful as an instrument to measure intervention impact. Although CBM-W provides a high level of reliability combined with ease of administration and a supportive, straight-forward scoring system, the short period of time that pupils have to write inhibits productivity and the potential for lexical diversity, particularly for children with language difficulties who may have difficulties with lexical retrieval and may require longer to mentally organise ideas before writing.

Although Dockrell et al. (2014) found this to be a reliable and useful method for assessing writing, allowing pupils a longer period of time to write while still using a prompt and analytic scoring system affords researchers and practitioners an opportunity for a more in-depth analysis of lexical diversity and examination of grammatical construction.

A significant contribution to writing assessment was afforded by the development and evaluation of the Writing Assessment Measure (WAM), (Dunsmuir et al., 2015). This 15-minute task assesses handwriting, spelling, punctuation, sentence structure and grammar, in addition to vocabulary, text organisation and overall writing structure, and the ideas underpinning the written composition. The WAM was found to produce consistent results with reliable scores across different raters. Furthermore, the WAM had a significant correlation with the Weschler Objective Language Dimensions Written Expressive Language sub-test (Psychological Corporations, 1996). The researchers here highlight the fact that the system of analytic scoring generates information on the strengths and weaknesses of individual pupils, which can be used to plan and evaluate intervention. However, it is also emphasised that accurate assessment should be undertaken by professionals with appropriate training in writing assessment and should focus on the processes involved when children write (Dunsmuir et al., 2015).

2.10 Conclusion

Good oral language skills are crucial for children to communicate effectively and to become skilled readers and writers. Models of reading have developed over the last 30 – 40 years in response to the growing understanding of the processes involved in the acquisition of reading skills. However, throughout this time, the influence of language and linguistic comprehension has remained a central feature of these reading models. The early years curriculum places a strong emphasis on spoken language and communication, but this emphasis reduces in the literacy curriculum as it develops through the primary school years. Current assessment practices in schools do not offer sufficient insight into individual differences and the specific language and writing difficulties that require support and intervention for some children. Given what is known about the impact of language skills on literacy development, especially for children from areas of social disadvantage, tests that can accurately and reliably assess the different components of writing of language and writing development should become a common feature of primary school practice.

3 Oral language and long-term outcomes

3.1 Introduction

This chapter will begin by exploring the impact of oral language skills on children's early development. The critical role that language skills play in psycho-social development and academic learning will be examined. The impact of language weaknesses on academic attainment, employment, mental health and longer term outcomes will be explored. The extent to which the environment and social disadvantage underpins language development will be considered together with the enduring effects of oral language difficulties and their interaction with social disadvantage across the lifespan.

Language skills are crucial for literacy attainment (Hulme et al., 2015; Hjetland et al., 2020) and for social development (Norbury et al., 2016). Children presenting with language difficulties at pre-school are at risk of later literacy difficulties (Snowling & Melby-Lervåg, 2016). The incidence of early language problems is much higher for children from socially disadvantaged backgrounds (Roulstone et al., 2011). Research has highlighted the relationship between disadvantage in the early years and poor subsequent academic performance (Locke et al., 2002). Crucially,

research has shown that the attainment gaps between children identified with language difficulties in the early years and children with good language skills not only persist but increase as children progress through primary and secondary phases of education. For example, a comprehensive synthesis of evidence on the relationship between early language and literacy development and later attainment in school conducted by the Education Endowment Foundation (Law et. al., 2017) suggests that of children identified as having delays in early language development approximately 70% have difficulties that are ultimately ameliorated through usual practice while in preschool, but that 30% of these children experience difficulties that persist beyond that stage.

National data from the Department for Education (DfE) show that in 2023, on foundation stage profile outcomes demonstrate that at the end of the reception class year, 20% of children did not achieve the expected level in communication and language and 30% did not meet the expected level for literacy (DfE, 2023b). DfE national attainment data for 2023 (DfE, 2023a) shows that only 60% of pupils at the end of Key Stage 2 (the final year of primary schooling in England), achieved the expected standard in reading, writing and maths (combined), 73% met the expected standard in reading, and 71% met the expected standard in writing, as assessed through teacher assessment. Thus, nearly one third of children entering secondary education do so without having met the standards of reading, writing and

maths required to fully access the secondary curriculum, a curriculum which places significant language and writing demands on pupils.

Poor literacy is associated with lower levels of full-time employment (Bynner & Parsons, 2006) lower income (De Coulon et al., 2010) and increased risk of depression (Chevalier & Feinstein, 2006). Studies have shown that a high proportion of young offenders present with weak language skills (Bryan et al., 2007). Adult prisoners have also been found to have high levels of communication difficulties, many having offending behaviours related to these difficulties (McNamara, 2012). Getting literacy right early, therefore, has clear implications for both the individual and society.

Language provides the means for children to develop both social skills and higher order skills, both of which are required for academic success and positive outcomes throughout life (Golinkoff et al., 2019). Language scores obtained by children in kindergarten are the best individual predictor of academic achievement at grade 3 and grade 5 (ages 8 to 11) across all curriculum subjects (Pace et al., 2019). Language not only directly supports academic learning and attainment, but good language skills in turn support the development of effective self-control which promotes successful academic and social outcomes (Roben et al., 2013).

3.2 The relationship between oral language skills and psycho-social development

It is well known that oral language skills play a crucial role in children's early life and their psycho-social development (Van Agt et al., 2011). Language and behavioural difficulties are frequently observed in children of school age (Hollo et al., 2014). As children develop, the linguistic interactions in the home equip them with the vocabulary knowledge required to understand emotional states and concepts and the words to express their own inner state and to describe relationships (Farmer, 2006). Farmer argues that for children with early expressive language difficulties or receptive language difficulties that inhibit understanding, the development of their social understanding is impeded. These early delays then impact on self-regulation, self-esteem, and self-worth and in turn on peer relationships (Farmer, 2006). Therefore, without the requisite tools to engage meaningfully in social interactions, children with language difficulties are at risk of socio-emotional and behavioural problems (Ayoub & Fischer, 2006).

A large scale study comparing children with language disorders to a control group who did not have language disorders Van Agt et al. (2011) found that children's attitude to learning in school was negatively associated with language difficulties, with weaknesses in reading, spelling and pragmatic language. This in turn negatively influenced social behaviour with peers.

Children with language difficulties, in particular, children who had difficulties with syntax in the production of oral language were found to have lower levels of emotional stability. Of great concern was that children who presented with a language disorder were found to have a quality of life that was lower than that of children without a language disorder. Socio-emotional problems and poor quality of life were particularly prevalent in children with language disorders characterised by weak receptive and weak expressive language skills (Van Agt et al., 2011).

Receptive, expressive and pragmatic language skills appear to exert the greatest influence on psycho-social development and on the development of emotional and behavioural disorders (Benner et al., 2002) with strengths in children's understanding of the world and of social situations being key to positive social behaviours. In a review of language difficulties and their impact on behaviour (Benner et al., 2002), teacher and parent perceptions of children with expressive language difficulties was that they exhibited symptoms of anxiety related behaviours and of withdrawal from social interaction.

Benner and colleagues also noted that children's receptive language difficulties were often not identified. Children with receptive language difficulties are at a greater risk of reading difficulties and are found to have a higher prevalence of psychiatric problems (Clegg, 2006). As children progress through childhood the strength of the relationship between

language difficulties and behaviours associated with poor social functioning has been found to increase (Clegg, 2006). Language difficulties also affect social relationships throughout the life span, with weak language skills rendering children more likely to resort to physical actions to resolve problems (Benner, 2002).

Longitudinal studies of groups of individuals with language disorders facilitate the opportunity to explore the developmental relationship between language difficulties and behaviour. The findings of two independent longitudinal studies involving data collected from 224 children, their mothers, and teachers (Bornstein et al., 2013) were that children with weaker language functioning had more problems with internalising behaviour, that is, 'such problems as anxiety, depression, social withdrawal, and somatic complaints without apparent medical cause' (Achenbach et al., 2016, p.649) with no gender differences in the prevalence of these behaviours (Bornstein et al., 2013).

The findings of Bornstein et al. (2013) of a significant relationship between weak language skills and behaviour in children were confirmed by a systematic review and correlational meta-analysis (Chow & Wehby, 2018). If children with speech and language difficulties do not have their difficulties resolved by the age of 5 years, these difficulties frequently become persistent, with children with speech disorders at greater risk of academic and social difficulties that persist through to their later years

(Clegg, 2006). A limitation of the review, (Chow & Wehby, 2018), acknowledged by the authors, was that the theoretical model that they designed and that demonstrated the impact of language skills on behaviour and academic performance, was unable to account for the impact of social disadvantage on behaviour problems.

Children with speech and language difficulties also show higher rates of psychiatric problems compared to children without speech and language difficulties (Clegg, 2006). Clegg argues that there is a potential relationship between language weaknesses and social behaviour problems in adults. She proposes that the higher rate of problems related to social situations and the behaviours exhibited may be explained by difficulties with communication and social problems at a time in a young person's life when life when there is increasing academic and social pressure.

There is evidently, then, a relationship between language difficulties and later emotional and behavioural development for young people. The first summary of the strength of this relationship between Specific Language Impairment (SLI) and emotional behavioural outcomes was produced as a result of a meta-analysis and systematic review (Yew & O'Kearney, 2013). A strong relationship was found between SLI and later clinical level symptoms related to attention deficit hyperactivity disorder (ADHD) and emotional and behavioural problems. Yew and O'Kearney (2013) advise caution in attempting to generalise their findings, due to the limited

number of studies eligible to be included in their final sample, and because the majority of the studies included in the analysis did not take account of emotional and behavioural problems at baseline.

Social and behavioural difficulties in children with SLI have frequently been deemed to result from rejection by peers, reduced levels of confidence, and weak linguistic skills (Conti-Ramsden & Botting, 2004). The picture may be more complex, however, as Conti-Ramsden and Botting (2004) highlight the concern that these behavioural difficulties and challenges with social relationships may be typical of children with SLI even after the language difficulties appear to have been ameliorated. Conti-Ramsden and Botting (2004) studied 242 children who had attended specialist language units at the age of 7 years. The children were followed up at the age of 11 years and assessed on their social and behavioural skills. The study found that for children with SLI, social and behavioural problems were long-term, with social difficulties relating to internalising behaviours. The study found that for children with SLI, social and behavioural problems were long-term, with social difficulties relating to internalising behaviours. Conti-Ramsden and Botting argue that there is a relationship between expressive language skills and how children presented verbally to others, and incidences of victimisation. A strong relationship was also identified between weak pragmatic language competence and social difficulties Conti-Ramsden & Botting (2004).

Of great concern is not only the evidence that social and behavioural difficulties of a significant proportion of children with language difficulties persist through the upper primary school years, but also well into adulthood, with far-reaching impact not only on relationships but also on employment and quality of life. Longitudinal studies provide a valuable insight into the trajectory of language disorders from childhood into the adult years. The impact of Developmental Language Disorder (DLD) on long term outcomes related to language, cognition and psycho-social behaviours was investigated by Clegg et al. (2005). The 17 men who participated in the study had been diagnosed in childhood with severe receptive DLD. The cognitive, psycho-social and language skills of the participants were assessed in childhood (mean age, 9.11 years); in their middle childhood years (mean age 13.04 years); in their early twenties (mean age 14.03 years) and in their mid-thirties (mean age 36.02 years). DLD participants were compared to other adults, matched on age and IQ performance, and a group from the National Child Development Study matched on childhood IQ performance and social class. They were also compared with their siblings who did not have a language disorder. The siblings were included in the study to facilitate a control for the family background shared by those who had DLD and those who did not present with a language disorder. The adults in their mid-thirties who had been diagnosed with severe DLD in childhood still showed significant difficulties with language compared to IQ matched controls and to their siblings.

Cognitive skills in the DLD group also remained impaired, including reading and spelling skills and theory of mind. At the age of 36, the average reading age of the DLD group was approximately 9 years, resulting in weak academic performance. Most of the DLD group had not achieved any formal qualifications by the end of secondary school, negatively impacting their employment, which in turn reduced opportunities for socialisation and led to a lower quality of life (Clegg et al., 2005).

Socio-economic deprivation exacerbates the impact of language difficulties on behaviour. The behaviours that some young people with language difficulties display lead them to the risk of exclusion from school (Clegg et al., 2009), with schools in deprived neighbourhoods often having high numbers of exclusions. A study by Clegg et al. (2009) assessed 15 mainstream pupils at risk of exclusion in an area of social deprivation for language difficulties. They found that 10 of the 15 pupils had language difficulties, five of whom had severe language problems. The remaining five pupils had no language difficulties. The findings of this study showed that language difficulties are associated with behaviour difficulties for many secondary school pupils facing the risk of exclusion.

3.3 Oral language and academic outcomes

The relationship between oral language proficiency and academic outcomes is now well understood (Hjetland et al., 2020; Hulme et al., 2020b; Snow, 2016). Oral language skills are important for psycho-social

development (Norbury et al., 2016; Van Agt et al., 2011) which in turn impact on behaviour for learning (Yew & Kearney, 2012; Clegg, 2006). Children need to be able to attend and focus in order to learn and, therefore, language difficulties causing internalising and externalising behaviours which impede attention (Conti-Ramsden & Botting, 2004) can inhibit the learning process and reduce the quality of a child's access to academic learning.

Social cognition is vital in a child's learning experiences, particularly in the early stages of education as a child begins to understand and make sense of the world outside the home (Farmer, 2006). Good language skills can facilitate the skills required for academic learning. Learning takes place in social contexts with children's learning scaffolded through interactions with more able adults (Vygotsky, 1981) and interactions with peers (Radford et al., 2015). This places children with language difficulties that affect the psycho-social skills required for academic learning at a disadvantage, as the quality of their interactions is reduced due to the limitations of their linguistic and social competency. Furthermore, children from disadvantaged backgrounds who start school with poorer oral language skills (Hart & Risley, 1995) and reduced receptive language skills are placed at a double disadvantage in developing the skills and behaviours required for academic learning.

The gaps created between children from disadvantaged backgrounds and those from more privileged, language-rich homes have been further compounded by the COVID-19 pandemic. A study investigating the impact of COVID-19 on transition from nursery to early years settings (Bakopoulou, 2024) found that children with SEND were particularly affected. Semi-structured interviews with Reception class teachers found that language development was the area identified by teachers as presenting the most significant impact for children with SEND. Listening and attention were identified as a cause for concern. Weak social skills and difficulties with group learning were also identified by teachers. Early academic skills such as phonological abilities and maths skills were seen to be delayed in many children. Notably, children with SEND and children coming from disadvantaged homes suffered the greatest impact, 'Interviewees acknowledged that the impact of the pandemic on children's development has not been the same for all children and that children from disadvantaged homes and children with SEND have been affected more,' (Bakopoulou, 2024, p.656).

Interviews with teachers highlighted the inequalities in children's experience of the pandemic and resulting lockdown, between children from more privileged backgrounds who accessed a high quality experience with parents in the home during lockdown, and those children who were already vulnerable due to challenging home circumstances. Bakopoulou (2024) argues that the pre-existing inequalities are likely to have been

compounded by the pandemic lockdown. Given what is known about how crucial these early linguistic, psycho-social and pre-literacy and maths skills are for academic development, the longer term impact of the lockdown on children with language difficulties, in particular those from disadvantaged backgrounds, will continue to require support and intervention for many years of their schooling. The limited access to specialist services during the pandemic lockdown reduced the specialist support available for language development (Bakopoulou, 2024), impacting on the early identification and early intervention that is crucial for children with difficulties in language and communication in the early years.

In the early stages of education, in the pre-school and reception class in schools in England, the Statutory Framework for the Early Years Foundation Stage (DfE, 2024) emphasises the importance of communication, language and literacy skills, clearly recognising the crucial role that spoken language plays in all areas of a young child's learning and social and academic development. Children who begin Key Stage 1 below the expected levels for their age in communication, language, literacy, reading and writing are beginning their National Curriculum years already lacking the basic linguistic and communicative skills required to access the curriculum fully, and in particular, they lack the foundational skills for literacy development (Hulme & Snowling, 2014).

As typically developing children master the skills required to become competent readers and writers and can expand their knowledge of the world by accessing broader academic learning and by reading increasingly complex texts with a wider range of more complex language and syntactical structures than are commonly found in spoken language (Montag, 2019). This in turn impacts writing competency and development ideas (Graham et al., 2018) with phonological skills informing spelling performance (Nagy et al., 2006). These skills are crucial for enabling children and young people to demonstrate the knowledge that they have acquired through writing, the most common medium through which individuals are required to show their knowledge in assessments throughout (Esposito et al., 2023).

Numeracy skills are also important for academic learning (Chow & Ekholm, 2019) not only directly in the mathematics curriculum, but also in science, and design and technology. Children's performance in literacy and numeracy on school entry has been found to positively impact later achievement in maths and science (Ozkan, 2022). Language skills are vital for engaging in social interactions in the home and in educational contexts, with these interactions with peers and adult supporting both psycho-social and academic skills development (Radford et al., 2015). A child's engagement with learning in the classroom requires good receptive and expressive language skills. Most children with language difficulties do not

achieve the required academic level at the end of their first year of primary education (Griffiths et al., 2024).

Therefore, if oral language underpins all of these pre-requisite academic skills, then children and young people with oral language difficulties are at risk of poor academic outcomes (Clegg et al., 2005). Furthermore, socio-economic status (SES) is a significant predictor of educational outcomes (Sirin, 2005). A key factor that inhibits children from low SES backgrounds achieving their academic potential relates to the home environment (Dietrichson et al., 2017). Dietrichson and colleagues suggest that the areas which children and young people from disadvantaged backgrounds are likely to inhabit are often less supportive of educational achievement as appropriate role models and peer support that are available to those in higher SES areas are less likely to be available in disadvantaged neighbourhoods. Furthermore, they argue that the skills that children and young people from disadvantaged backgrounds will need to draw on in daily life are likely to differ significantly from the skills required for academic success (Dietrichson et al., 2017).

It is evident that children with language difficulties and disorders present with internalising and externalising behaviours that affect positive socialisation with both their peers outside of school and in educational contexts (Bornstein et al., 2013). The internalising behaviours such as anxiety, depression and withdrawal that are frequently observed in

children with language difficulties (Conti-Ramsden & Botting, 2004) also affect school attendance (Foster et al., 2023). When SES and children's age was controlled for, the severity of speech and language disorders was found to be associated with a higher rate of school absence, poorer school engagement and greater likelihood of the needs to repeat school years in a US study (Foster et al., 2023)

Children who have speech and language difficulties have a greater likelihood of poor academic achievement and weaker social and emotional skills than children without speech and language difficulties. More severe difficulties increase the likelihood of poor academic outcomes (Foster et al., 2023). The impact of these difficulties can persist throughout the lifespan. Adults with severe language impairments often leave secondary education with no formal qualifications and in adulthood may only have the reading age expected of a typically developing child in Year 4, at 9 years of age (Clegg et al., 2005).

A systematic review of 44 empirical studies between 2008 and 2020 investigated the academic outcomes of primary and secondary school pupils with DLD (Ziegenfusz et al., 2022). As a group, pupils with DLD showed difficulties in relation to all aspects of academic outcomes compared to pupils without DLD, particularly in literacy and maths. The review confirmed that as the importance of understanding and producing spoken language is vital for academic success, children with DLD have a

heightened risk of poor academic outcomes. In young people with SLI, language and literacy skills have been found to predict educational attainment (Conti-Ramsden et al., 2009)

An important insight into academic outcomes for children with and without language difficulties is afforded by a prospective longitudinal study examining education, occupation, family life and measures of the quality of life (Johnson et al., 2010). Children were identified at 5 years of age and demographic data were collected alongside measures of cognitive skills, academic skills, communication, and psycho-social skills and behaviour. Individuals were then followed up at the ages of 12, 19 and 25, with the same measures being taken at each time point as had been undertaken at age 5 years.

Johnson and colleagues found that individuals with language impairment at age 5 showed weaker performance on all measures assessing language, cognitive and academic skills compared to those without a language disorder. Lower levels of formal academic qualifications were seen in the language impaired group. A history of language impairment did not result in differing rates of employment, job satisfaction and income between those with language impairment and those without language difficulties. However, the types of employment undertaken by the language impaired group were typically lower in status, with lower qualification requirements

and reduced opportunities for advancement within the organisation (Johnson et al., 2010).

Some young people with SLI have been found to perform well in qualifications at the end of compulsory schooling, but for many others the picture is less positive (Conti-Ramsden et al., 2009). Conti-Ramsden et al. (2009) found that at least one qualification was achieved by 44% of students with SLI on completing compulsory education compared to 88% of typically developing young people. However, 24% of young people with SLI were not entered by their schools for any formal national qualifications at the end of secondary education. Early language and literacy skills and young peoples' performance in these domains at the point of end of secondary school examinations were found to exert a significant impact on academic outcomes for young people with SLI (Conti-Ramsden et al., 2009). This study strengthened the findings of earlier studies (Clegg et al., 2005) that DLD persists throughout childhood into adulthood and that it heightens the risks of individuals suffering poor mental health throughout the life span. These long-term effects on education and employment were also found in a 30-year follow up study of 198 individuals who had been diagnosed with language impairments between the ages of 3 and 9 years. Difficulties had not resolved in adulthood, with individuals reporting literacy difficulties and unemployment (Elbro et al., 2011).

3.4 Oral language and mental health

Longitudinal studies of clinical samples of individuals have shown that early language difficulties continue into adolescence, a phase of development that sees profound changes from biological, cognitive and social perspectives (Cohen et al., 2013). At this stage, the understanding of higher order linguistic constructs, such as figurative language are vital for academic outcomes (Cohen et al., 2013). Cohen et al. (2013) found that social relationships were affected by difficulties with higher order language, with weaknesses in the ability to understand figurative language in spoken interactions. Poorer structural language and weaker high order language skills were found in the 144 young people (mean age 14 years 7 months) who had been referred for mental health assessment and treatment, than in the comparison group that consisted of 186 young people from the same catchment areas (mean age 15 year 4 months) with normal verbal or nonverbal intelligence. These weaknesses were identified using a test of language competence that required the participants to understand and explain multiple meanings in sentences with ambiguous interpretations, to infer, to create sentences based on incomplete information, and to understand the meaning of figurative language. An important factor in these differences was partially explained by the fact that more young people in the referred sample came from more socially economically deprived backgrounds. The findings indicated that young people with mental health problems and poor working memory, whose

maternal education levels are low, have a heightened risk of having a higher order language impairment, with socio-economic disadvantage increasing the risk. (Cohen et al., 2013).

The co-occurrence of language and communication difficulties with mental health issues is supported by extensive evidence, but the precise mechanisms that underscore the association are not yet clear (Hancock et al., 2023). Children and young people with emotional and behavioural disorders frequently have underlying language impairments, and DLD can have a profound effect on mental health with a heightened risk of symptoms associated with depression (Hancock et al., 2023). The way in which language and communication skills affect emotions may explain some association between language difficulties and mental health problems. Hancock and colleagues highlight the important role that strong language skills play in expressing feelings effectively, with socio-emotional development negatively impacted by language difficulties (Farmer, 2006).

Awareness is required on the part of teachers, clinician and parents as to how the mental health needs of children and young people with language difficulties may present. Hancock et al. (2023) suggest that the behaviours exhibited by children and young people with language and communication difficulties that co-occur with mental health difficulties are frequently seen as 'naughty' behaviours, as the underlying difficulties that cause these behaviours to manifest are not understood. Children and young people

with language impairments frequently experience difficulties with emotional regulation, relationships, expressive language, and anger. These difficulties then frequently persist into adulthood (Clegg et al, 2005).

Clear links have been established between language difficulties and mental health in children and young people (Conti-Ramsden & Botting, 2008).

From adolescence to adult life, individuals with language impairment have been found to have greater levels of anxiety and depression than those without a language impairment (Botting et al., 2016). Botting and colleagues found clinical levels of depression in a statistically significantly greater number of language impaired adults compared with those without a language impairment. Although levels of anxiety were also greater in the language impaired group, this was not statistically significant.

The anxiety seen in children and young people with language difficulties may be of a general type, or a more specific form of anxiety. Distinctions have been made between trait anxiety in which levels of anxiety remain similar across a range of situations, or state anxiety in which anxiety is provoked by particular situations (Fishstrom et al., 2022). Academic anxiety is described as a state anxiety in which educational situations cause anxiety that can manifest in behavioural, cognitive and physiological reactions. The low self-worth, low self-esteem and poor emotional regulation that are features of academic anxiety (Fishstrom et al., 2022) have been observed in children and young people with language difficulties (Farmer, 2006).

Fishstrom and colleagues suggest that research should investigate the underlying causes of the anxiety in the learning context to inform effective interventions personalised to individual need.

There is evidence in general terms that heightened levels of anxiety are found in individuals with learning difficulties. A meta-analysis of empirical studies investigating anxiety in school students with learning difficulties compared to students without learning difficulties showed that students with learning difficulties have higher levels of anxiety than students without learning difficulties (Nelson & Harwood, 2011). Anxiety was found to be characteristic of approximately 70% of students who had learning difficulties. The authors acknowledge that there may be a risk of publication bias in the studies analysed and recommend some caution in the interpretation of the findings (Nelson & Harwood, 2011).

It is well established that reading draws on spoken language processes (Snowling & Hulme, 2006) therefore it is important to consider the levels of anxiety shown by children with reading difficulties in a recent systematic review and meta-analysis (Francis et al., 2019). A moderate risk of internalising problems was found in children with reading difficulties when compared to typically developing readers. Francis and colleagues found a statistically reliable relationship between reading difficulties and anxiety. A statistically reliable relationship between reading difficulties and depression was also found, but this relationship was not as strong or stable

as the association between reading difficulties and anxiety. The authors propose that before intervening to ameliorate the reading difficulties, children should be supported through the teaching of strategies to reduce levels of anxiety (Francis et al., 2019).

It is evident then that there is a relationship between language impairment and mental health difficulties. However, it has not yet been established whether this is a causal relationship (Beitchman et al., 2001). That is, whether language impairment causes psychiatric issues, or whether psychiatric issues cause language impairment, or whether a third, lurking variable is responsible for both. Children diagnosed with a language impairment at the age of 5 years were found to have a heightened risk of psychiatric problems at the age of 19 when measured using the Composite International Diagnostic Interview, and the Global Assessment of Functioning scale. Beitchman et al. (2001) found substantially higher prevalence of anti-social personality disorder in males in the language-impaired group compared to males in the control group with no language impairment. The authors argue that other factors may be complicating the relationship between language disorder and psychiatric problems and therefore more research needs to be undertaken to attempt to disentangle this complex relationship.

What is clearer however, is the enduring nature of language difficulties into adulthood. Following the trajectory of children with language disorders

into adulthood presents a concerning picture of the multilayered impact that language difficulties can have on the life of an individual who has been diagnosed with a language disorder (Clegg et al., 2005). Clegg and colleagues reassessed 17 men who had been diagnosed with severe receptive DLD in middle childhood, in their twenties and again in their thirties. The trajectories of these individuals could only be followed by Clegg and colleagues because the participants in their study had received a diagnosis of DLD in early childhood. The picture becomes more complex when children's difficulties are not detected early and whose needs, therefore, remain unmet. This can have potentially very serious psychiatric consequences. For example, in a study investigating the prevalence of unsuspected language disorders in 4 - 12 year old children attending psychiatric outpatient units (Cohen et al., 1993), screening using standardised measures of language ability was administered to 399 children. Of the 288 children who had been referred purely for a psychiatric impairment, 99 children were found to have a previously unsuspected language difficulty. These children showed difficulties with auditory memory and receptive phonology and presented with serious externalising behaviours. Cohen and colleagues suggest that due to the presence of phonological and auditory memory difficulties in these children, it is possible that those difficulties are also having a negative impact on reading development.

A strong relationship between language impairments and psychiatric problems has been established (Sundheim & Voeller, 2004). The authors argue that language impairments are frequently undetected, particularly in children displaying behaviour problems. They propose that there is a significant risk of psychiatric problems, such as anxiety, depression, ADHD, and antisocial personality disorder in individuals with language impairments. These disorders frequently manifest in early childhood and may persist through into the adult years. They consider how historically, interventions delivered in clinical and school settings have been unable to alter the trajectory of these language and psychiatric disorders. However, they highlight initial positive signs from functional magnetic resonance imaging of alterations in the brain as a result of interventions targeting phonemic understanding (Sundheim & Voeller, 2004).

Follow up studies investigating the impact of diagnosed language disorders in childhood have led to important advancements in our understanding of the relationship between language impairments and psychiatric disorders. A review of 10 years of research into children's language impairments has confirmed that early language impairments create an elevated risk of psychiatric disorders (Toppelberg & Shapiro, 2000). More serious emotional and behavioural problems are associated with more generalised language disorders, impairments characterised by combined deficits in receptive and expressive language, and phonological skills. Language disorders characterised by receptive language and comprehension

difficulties heighten the risk of co-morbid pragmatic, phonological and psychiatric problems. Furthermore, these difficulties frequently remain unsuspected and undetected (Toppelberg & Shapiro, 2000). The authors draw attention to the fact that the studies reviewed predominantly involve monolingual English-speaking children and so further research is required to determine whether these findings can be generalised to children who speak minority languages and to bilingual populations.

Qualitative studies investigating the lived experience of adults with DLD are rare. A recent study explored the experiences of six adults with DLD, five of who were aged between 40 and 60 years of age, and five speech and language therapists whose clinical work involved individuals with DLD (Wilmot et al., 2024). Anxiety, low self-esteem, and depression throughout life were reported, alongside incidents related to self-harm and suicidal behaviours. Employment concerns were linked to mental health problems due to financial worries, discriminatory behaviours or bullying in the workplace, and the exhaustion that resulted from trying to mask or find ways to compensate for language problems in the work environment. Loneliness due to the impact of reduced linguistic competency on social interaction also featured as a mental health concern.

3.5 Oral language and employment outcomes

There is limited research that has focused specifically on occupational outcomes of individuals with language impairments. However, much

research has examined the links between psycho-social, education, mental health, and employment, and the extent to which these in turn affect employment outcomes for individuals with language disorders. Individuals with DLD have been found to be more likely to be employed in unskilled roles and in jobs involving manual labour (Clegg et al., 2005). Periods of instability in employment in adult life were reported, with two thirds of the adults reporting extended periods of unemployment that exceeded two years. Maintaining employment was also a problem for many of the DLD adults in this study, with 7 of the sample of 17 participants having been dismissed by their employers. The reasons for dismissal included inability to manage workload, poor engagement with colleagues, and bullying. Inappropriate behaviour in the workplace such as offensive language directed at colleagues, fighting, setting fire to office papers and issues with timekeeping (Clegg et al., 2005). An increased likelihood of mental health problems and difficulty maintaining employment was also found in individuals with SLI who had weak literacy skills (Law et al., 2009).

Conti-Ramsden et al. (2018) investigated the educational and employment outcomes of individuals with DLD with an average age of 24 years, compared to age matched controls without DLD. Employment patterns were similar for those with and without DLD in relation to the number of paid employment positions held, number of hours worked each week, and permanence of roles, since completing secondary education. However, the young adults with DLD were less likely to be employed in professional

positions and more likely to have less skilled roles. There were no significant differences in income between the two groups, although the authors draw attention to the fact that at the age of 24 years, they are still at an early stage in their careers. Previous research (Clegg et al., 2005) has shown that adults with DLD have limited opportunities for progression, with those with a history of language impairment more likely to be employed in unskilled or manual labour than peers (Langbecker et al., 2020). It has been hypothesised that weak language skills at age 5 years elevate the risk of behavioural and social problems, which in turn reduce access to opportunities that may improve employment opportunities (Dubois et al., 2020).

It is important also to consider the barriers that individuals with DLD may face in the workplace, which in turn may increase the stress experienced by those with language impairments. Awareness of DLD by workplace managers has recently been investigated as a potential barrier to employment (Lemos et al., 2022). Unlike with other conditions such as autism, that managers were very familiar with, awareness of DLD was low amongst managers, with approximately only one quarter of those surveyed having heard of the term DLD. However, there was a sharp increase in managers recognising what is meant by DLD once a definition of DLD was provided, with managers then aware of workplace colleagues with DLD whose behaviours matched the definition. The quarter of managers who were aware of DLD saw the lack of awareness of DLD as the greatest

barrier to employment for those with DLD. It is argued (Langbecker et al., 2020) that in the current employment context, which has seen a marked reduction in manual labour, the ability to communicate effectively will define the requirements of the workforce, 'Societal self-interest will drive an increased allocation of resources to optimise the communication and ability of its population, for this is how society prospers,' (Langbecker et al., 202, p.245).

3.6 Oral language and the justice system

Language impairments then, have been found to increase the risk of mental health problems Children and adults with mental health difficulties have been found to have unsuspected and undetected language impairments. Previously undiagnosed language impairments have also been found to be characteristic of young offenders (Snow & Powell, 2008). Snow and Powell found a broad range of language processing difficulties alongside difficulties in the organisation of positive models of spoken language that would facilitate engagement with others in a variety of social contexts.

Weak language skills and difficulties with auditory processing, poor expressive vocabulary and weak narrative skills have a strong impact on young male encounters with authority figures in relation to youth offending behaviours. Young people with language difficulties are often unable to articulate detailed, clear responses to questioning and show

limited eye contact (Snow & Powell, 2012). In particular, young people from disadvantaged backgrounds who are involved with the justice system have been found to have an increased likelihood of having unidentified language difficulties when assessed using standardised language instruments (Snow & Powell, 2011). Snow and Powell found that 46% of a sample of 100 young offenders who were serving custodial sentences in Australia, met the criteria for language impairment.

When examining the relationship between the severity of the offence that resulted in the custodial sentence, higher scores for the offending acts were correlated with weaker language skills, compared to young people whose offences were awarded a lower score (Snow & Powell, 2011). The young offenders in this study had typically not completed formal schooling. 46% of the language impaired group reported receiving a targeted literacy intervention, including Reading Recovery, in early primary schooling. The authors highlight the limited impact that these interventions had on later outcomes, and stress that, oral language difficulties are not resolved through literacy interventions. They argue for greater rigour and focus on oral language skills when learning difficulties and behaviour problems are displayed by boys in the early years of schooling.

The findings of Snow and Powell (2011) in an Australian context were confirmed in a later study of 93 young offenders in a youth offending institution in England (Hughes et al., 2017). Hughes and colleagues found a

particularly high prevalence of receptive language difficulties, with more than 40% of the young offenders demonstrating receptive language skills that were significantly lower than in the general population for young people of the same age. One quarter of the young offenders who were found to have a language impairment had received support from speech and language therapy services. The authors draw attention to the fact that for the other participants, all core services in the community, education, health, social care and earlier interactions with the justice system, had failed to identify the young people's language difficulties. Identification by professionals in education was made more challenging due to poor school engagement, with 3 in 4 of those found to have a language impairment having experienced school exclusions (Hughes et al., 2017).

As highlighted by Snow and Powell (2011), the oral language difficulties that cannot be ameliorated by interventions for literacy not only increase the risk of adult interactions with the justice system but are the very tools that individuals require when navigating that justice system (Anderson et al., 2016). In their systematic review of language impairments in young offenders, Anderson and colleagues highlight that, 'Despite the vulnerabilities...youth offenders are required to negotiate a justice system that is highly reliant on language skills,' (p.196).

There is strong evidence then that language difficulties are predictors of offending behaviours. The gaps in research examining the experiences of

young offenders by listening to the voices of the young people themselves was addressed by (Hopkins et al., 2016). Hopkins and colleagues explored the perceptions and experiences of literacy (reading and writing) and communication (social interaction involving expressive and receptive language) among a group of 31 young offenders aged between 13 and 18 years. The majority of the young offenders serving court orders who participated in the study were male from areas of high social deprivation and had high rates of exclusion, low school attendance and high incidence of statements of special educational needs (Hopkins et al., 2016). The young people expressed dissatisfaction with their communication and literacy abilities and wished to improve competencies in these areas. Comprehending other people in educational and youth justice contexts was the most highly rated difficulty of participants, with some perceiving that their weak understanding was the result of poor engagement and attention. Perceived poor levels of support at school as well as being made to feel embarrassed by authority figures were also reported. Young people who are already disadvantaged by their language impairments are then engaged in interactions with the justice system that require participation in interviews that involve rich language (Anderson et al., 2016).

3.7 Conclusion

Oral language exerts a powerful influence on psycho-social, academic, mental health and occupational outcomes. Individuals with weak language

skills often have poorer psycho-social skills and are at risk of poor academic outcomes. The prevalence of individuals with language difficulties, both identified and undetected is a great cause for concern. The life challenges experienced by individuals with language difficulties affect the quality of their lives throughout their lifespan. This impact is felt most strongly by those from disadvantaged backgrounds.

4 Oral language interventions

This chapter will critically examine oral language interventions in the primary school years that are designed to ameliorate the language weaknesses that affect an increasing number of children on school entry and which for some children persist as they progress through their education.

The last 15-20 years have seen an increase in research interest in developing and evaluating the efficacy of oral language interventions, with a particular focus on addressing language needs in the early years of a child's education. These intervention studies have been driven by an increasing knowledge and understanding of language development and the ways in which it underpins the development of literacy skills (Hjetland et al., 2020; Hulme et al., 2015) and how it creates the foundation for academic learning (Law et al, 2017).

The research interest in evaluating the efficacy of oral language interventions has resulted in robust evidence that these interventions can be effective for children with language difficulties (Rogde et al., 2019). The systematic review of language interventions undertaken by Rogde and colleagues included 43 studies, 28 RCTs and 15 quasi-experiments conducted between 1992 and 2017. The interventions examined were designed for children of pre-school and school age, although the majority

of studies involved pre-school age children. The review found that for immediate intervention effect of language comprehension interventions, language comprehension outcomes ranged from $g = 0.10$ to 0.22 , with follow-up effects ranging from $g = 0.09$ to 0.36 . Small group interventions were found to be more effective than interventions that were delivered to large groups or whole classes. Although the studies eligible for the review varied in quality, and few assessing long-term intervention effects, the review provides evidence that oral language interventions can reduce the gap between children with good language skills and those with language weaknesses.

4

4.1 Oral language interventions in the early years

Oral Language intervention research has focused heavily on addressing the language weaknesses of children in the early years in order to best prepare them for the social and academic world of the primary school years. Oral language interventions in the early years will be critically examined in this section. To set these interventions in the context of practices within the school context of special educational needs (SEN), the factors affecting the decision to intervene for language difficulties taken by a SENCO and early years teachers in partnership with the parents will first be explained.

The Early Years Guide to the SEND Code of Practice (DfE, 2014) emphasises the importance of not delaying in implementing special educational provision once a holistic picture of a child's background and needs indicates that SEN support is required, 'Delay at this stage can give rise to learning difficulty, and subsequently loss of self-esteem, frustration in learning and to behaviour difficulties,' (p.14). If schools identify a learning difficulty or a disability that is likely to lead to significantly greater problems with learning than most other learners, they are required to make special educational provision as, 'early identification and early intervention can significantly reduce the need for more costly interventions at a later stage,' (p.15).

The SEND Code of Practice (DfE/ DoH, 2015) requires schools to inform parents if they are concerned about a child's development, progress and needs and to implement the graduated approach to need. The graduated approach involves assessing a child's needs, planning appropriate support or intervention, implementing the planned support and reviewing the impact in partnership with parents. The SEND Code of Practice makes it clear that parents should be advised if special education provision is made for a child, with maintained nursery schools having a statutory responsibility to inform parents. The SENCO should lead and co-ordinate the graduated approach in collaboration with the early years' practitioners, in line with EYFS materials, resources from Early Support and guidance on Early Years Outcomes (DfE/DoH, 2015).

Before deciding that a child may require additional support, however, schools need to be confident that universal high quality teaching is in place for all pupils and that a child's response to high quality teaching has been closely monitored to ensure that the apparent child's needs are not the result of inadequate teaching practices,

'High quality teaching, differentiated for individual pupils, is the first step in responding to pupils who have or may have SEN. Additional intervention and support cannot compensate for lack of good teaching. Schools should regularly and carefully review the quality of teaching for all pupils, including those at risk of underachievement. This includes reviewing, and where necessary, improving teachers' understanding of strategies to identify and support vulnerable pupils and their knowledge of the SEN most frequently encountered.' (SEND COP, p.99).

At times, this can be challenging for the SENCO, where on the one hand, early identification and early intervention are of paramount importance, but on the other, there is a risk of misidentification or over-identification of need if the quality of teaching is not high and if robust quality assurance of teaching and teacher knowledge is not in place.

A study of the first video measure used in pre-school to investigate teachers' pedagogical skills in oral language teaching (Mathers, 2021) highlighted the importance of teachers' practical knowledge in the classroom in ensuring the delivery of high quality teaching. Mathers found

that teachers' higher order knowledge is vital, and that as it may not develop naturally, it should be explicitly developed and supported.

Mathers argues that teachers need to develop pedagogical reasoning and a rich and varied professional vocabulary if they are to be able to effectively support young children's language development. If teacher knowledge is high, the quality of teaching is high and rigorous monitoring processes by the senior leadership team (SLT) are in place as part of an ongoing cycle of improvement, confidence can also be high that identification of child need is accurate (Mathers, 2021). Education professionals experience very limited training in oral language development and in effective ways to support oral language in the classroom, highlighting the need for ongoing professional development in this area (Dockrell et al., 2107).

4.2 Oral language interventions in the Early Years and Key Stage 1

Research evaluating the efficacy of language interventions has increased significantly over the last 15 – 20 years as knowledge in the field has strengthened our understanding of the profound impact that oral language skills have on reading and writing (Dockrell et al., 2019; Hulme & Snowling, 2016; Nation et al., 2004) and academic and long-term outcomes (Cohen et al., 2013). An evaluation by the Education Endowment Foundation (EEF) of 154 oral language interventions found an average impact of approximately 7 additional months progress over one year in the early

years and six months additional progress over a school year in the primary school years. The interventions that were delivered by trained TAs reported a similar impact to those delivered by teachers. The most successful oral language interventions were those delivered at least three times per week over a sustained period of time. The EEF rated the evidence of the effectiveness of oral language interventions as high, although they stated that it was not possible to award the highest available rating as a high percentage of the studies had not been evaluated independently (one of the criteria the EEF uses when evaluating the risk of bias of primary research). The estimate of the costs of implementing oral language interventions was deemed by the EEF to be very low, with cost generally related to start-up costs, such as resources, books and staff training. More in-depth training for staff may lead to the average cost of oral language interventions increasing from very low cost to moderate.

Evidence from the EEF evaluation that indicated that interventions with a greater number of sessions over a sustained period of time were most effective is supported by the findings of a recent meta-analysis (Donolato et al., 2023) of 42 oral language intervention studies that included RCTs and quasi experiments. To meet the inclusion criteria the interventions were required to have a specific focus on oral language skills, either through explicit techniques and structured activities, such as vocabulary, grammar and narrative, or implicit techniques and a broader range of activities including shared book reading. The synthesis of the evidence of

effective oral language interventions showed the importance of an explicit focus on the development of spoken vocabulary, and the active engagement of children in learning and using new vocabulary. Effective components of sessions included conversations with adults and peers about the content of shared texts, structured questioning, and facilitating opportunities in groups for children to share their thought processes. Interventions that included sessions of longer duration delivered over an extended period of time were found to be more effective than short sessions and interventions delivered over a short period of time.

Many studies have sought to evaluate the impact of individual language dimensions on children's oral language skills, in particular interventions targeting vocabulary, and book reading, and text comprehension instruction (National Reading Panel, 2000; Zucker et al., 2013; Moore et al., 2014). A study by Zucker et al., (2013) involving 178 predominantly at risk children (mean age = 52 months) and 28 teachers in pre-schools in the US investigated the longitudinal relationship between the frequency and extra-textual talk during shared reading in pre-school classrooms and language and literacy performance of the children when they were in kindergarten and in first grade. Long-term effects on vocabulary and reading skills were found to be influenced by the high quality reading experience during the reading sessions, rather than by the frequency of the sessions. The extra-textual talk prior to the shared book reading, during the text reading and following the shared experience was found to

impact short-term gains and to exert a long-term influence on children's language and literacy skills (Zucker et al., 2013).

There are a number of widely available oral language interventions that are promoted in schools in the UK by local authorities and Speech and Language Therapy Services, such as Talk Boost and Word Aware (Parsons & Brannigan, 2016). Although Word Aware, a 10-week vocabulary intervention, is commonly used in schools, its efficacy in improving the vocabulary of children in the early years had not been evaluated using a control group until a pilot study was undertaken in 2022 (Hopkins et al., 2022). The pilot study involving 123 reception class children from low SES areas in the West Midlands sought to evaluate the efficacy of Word Aware in improving children's knowledge of conceptual vocabulary, by comparing their performance to children who received regular teaching.

Word Aware is an early years structured language intervention for the whole school that aims to reduce the language skills gap that has been shown to exist between children from low and high SES backgrounds. No significant differences in word learning were found between the intervention and control groups following the 10-week programme delivered by student speech and language therapists. Both intervention and control groups showed improvements on vocabulary tests at post-test. There were a number of methodological weaknesses in this study, although it should be acknowledged that it was a pilot study. There was an

imbalance in numbers of participants in each group from the two participating schools. There were 92 children in the intervention group from one school, and 31 in the control group from another school. Having all intervention children in one school and control in the other school rendered it impossible to control for other factors such as instructional quality and teaching methods used outside of the intervention.

Vocabulary is a core language skill that children with delayed language need support to develop, but opportunities for communication are also required to aid children's language development (Dockrell et al., 2023). Early Talk Boost, a small group (6-8 children) targeted intervention for children aged 3 – 4 years is commonly used in schools in England to support children with delayed language skills.

The programme was designed by Speech and Language Therapists and specialist teachers from Speech and Language UK, with support from parents and early years practitioners. Early Talk Boost is a manualised 9 week programme with a focus on attention and listening, learning vocabulary and constructing sentences. Children participate in three 15-20 minute sessions each week.

An evaluation of Early Talk Boost (Reeves et al., 2018) delivered in eight nurseries with seven nurseries in the waiting list control group found positive intervention effects with the intervention group showing 4.93 months progress, compared to 2.33 months progress for control children.

The authors recommend caution in interpreting these results as without a delayed post-test, it is not possible to determine whether the gains would be maintained and suggest that further investigation is needed of the long-term impact of short intervention programmes. A planned EEF independent evaluation of Early Talk Boost using an RCT design, involving 1056 children in 132 schools that was due to commence in 2023 offered the opportunity to obtain a more robust picture of the effectiveness of the programme. However, this evaluation was halted due to issues with recruiting sufficient participants and with baseline data collection.

Interventions targeting oral language skills in Key Stage 1 are less common. As children enter the National Curriculum years, the focus of the literacy curriculum shifts to an intense phonics based approach for reading and spelling. Talk Boost Key Stage 1 is one of few interventions that offers schools the opportunity to intervene to support children identified by their teachers in Year 1 and Year 2 as having delayed language. The intervention targeting receptive and expressive language is delivered by a teaching assistant to groups of 4 children over a 10 week period with three 30-40 minute sessions per week focusing on listening and attention, vocabulary, constructing sentences, and storytelling and discussion.

An evaluation of Talk Boost in 18 schools in areas of social deprivation in West Yorkshire involving 180 Year 1 and Year 2 children (Lee & Pring, 2016) found that children, including those with English as an additional language

(EAL), improved following the Talk Boost intervention, but still remained below the expected level for their age. A methodological weakness in this study is that children were selected to participate in the intervention by their teachers based on a teacher perception of delayed language. Lee and Pring (2016) believed that teacher selection of participants would be a more realistic and practical approach in the wider implementation of the programme in the future. Teachers were asked to identify those children they believed to have delayed language based on weak vocabulary skills, poorly constructed sentences and language that was not sufficient to enable active participation in learning, play, or socialisation with peers. A more objective screening measure would have facilitated greater accuracy in detecting language delay for participant selection. Although only a 10-week intervention, the authors state that schools found it challenging to allocate the required time to intervention delivery and that there were schools who were unable to participate due to the time commitment. Lee and Pring (2016) suggest that participation in the Talk Boost study was negatively impacted by the priority afforded by schools to phonics and reading instruction at the expense of addressing speech and language skills which offer support for children's broader progress and attainment.

The effectiveness of two intervention programmes, the Phonology with Reading (P+R) intervention and the Oral Language (OL) Intervention, for children with weak oral language skills at the point of school entry were compared using a randomised controlled trial (Bowyer-Crane et al., 2008).

The mean age of the children in the study was 4 years and 9 months. Participants were screened on a measure of expressive language and non-word repetition to identify the 10 children in each class with the lowest scores. These 10 children in each class were further tested on a verbal composite measure that included vocabulary and verbal reasoning. The results of the in-depth testing were used to identify 8 children in each class who were selected to receive the intervention. These 152 children were randomly allocated to the (P+R) intervention or the Oral Language (OL) intervention (Bowyer-Crane et al., 2008).

Both programmes followed the same 20-week structure, divided into two 10 week blocks. The interventions were manualised, and the programmes were delivered by trained teaching assistants as daily 20-minute sessions that alternated between small group and individual sessions. The P+R programme focused on phonological awareness, letter-sound knowledge and reading of books that children could read with at least 90-95% accuracy. To develop children's reading vocabulary the programme also included explicit teaching of sight words. The OL programme focused on vocabulary, expressive language, inferencing and listening skills.

Children receiving the OL programme made moderate gains in expressive vocabulary and grammar which have been shown to reliably predict reading comprehension. These gains were maintained at 5-month follow-up. The P+R group made gains in phonological awareness and prose

reading but not in single word reading. Of particular relevance to the present study, the outcomes of this RCT (Bowyer-Crane et al., 2008) provided evidence that a 20-week oral language intervention delivered by trained teaching assistant that targeted expressive language and vocabulary skills could be effective for children with identified with weak language skills.

A methodological weakness of the evaluation of the effectiveness of the P+R and OL interventions (Bowyer-Crane et al., 2008) was that it did not include an untreated control group, which as the authors acknowledge, makes it difficult to ascertain the true impact of the interventions on the children's reading and language skills. Additionally, a disappointing finding from the study was that despite the gains made from the interventions, over 50% of the at-risk children still required additional literacy support following completion of the intervention. Bowyer-Crane and colleagues suggest that a potential way to address the risk of continuing difficulties for children at risk of literacy difficulties would be to intervene earlier by providing the OL intervention to children before school entry.

This approach was adopted by Fricke et al. (2013) who conducted an RCT to evaluate the efficacy of a 30-week oral language intervention based on the OL intervention trialled in Bowyer-Crane et al. (2008), 10 weeks in nursery before children start formal schooling and 20 weeks in reception, the first year of school. From a methodological perspective, the true

impact of the oral language intervention could be detected in this study due to the inclusion of an untreated waiting-list control group.

The children received three group sessions per week in nursery and continued with sessions on a daily basis once in reception class. In reception class, the children received three 30-minute group sessions in addition to two 15-minute individual sessions of an OL programme that was a modified version of the Bowyer-Crane et al. (2008) OL intervention. At immediate post-test, the OL intervention was found to be effective in improvements to children's oral language and oral narrative skills, improvements that were maintained at 6-month follow up. There was also a significant impact of the OL programme on reading comprehension at 6-month follow up.

The delivery of 30-week interventions in schools is expensive and places huge demands on school resources, particularly at a time when school funding has been reduced. Schools are required to make efficient use of resources and to ensure that access to resources for all children is fair and equitable and responsive to children's needs. Therefore, while a 30-week early intervention for children whose needs have been identified early may be effective and may reduce the need for costly intervention in the later school years (DfE/DoH, 2015), it is expensive to implement due to the TA time required for delivery. It is important then to evaluate whether there are significant differences in outcome from a 30-week OL intervention

spanning nursery and reception when compared with a 20-week programme for children in reception. Therefore, a study evaluating whether there were significant differences in outcomes for children with or at risk of oral language difficulties following a 30 week OL programme when compared to a 20 week programme (Fricke et al., 2017) provided an important opportunity to enhance the evidence base from earlier studies and to provide valuable support to schools for resource funding decisions.

Fricke et al. (2017) conducted an RCT with 394 children in nursery and reception to compare the outcomes of children receiving the 30 week nursery and reception Nuffield Early Language Intervention (NELI) n= 132, with children receiving only the 20 week reception NELI programme, n=132 and an untreated control group, n=129. Both groups receiving the intervention showed small to moderate effects of the intervention when compared to the untreated control group, but the difference in improvements between the programmes was not statistically significant.

The trials of the OL intervention (Bowyer-Crane et al., 2008; Fricke et al., 2013, Fricke et al., 2017) led to the development and publication of the Nuffield Early Language Intervention (NELI) (Fricke et al, 2018). As with earlier versions of the programme, NELI focuses on developing children's vocabulary, narrative skills and listening skills. In the second half of the programme, phoneme awareness and letter sound knowledge are incorporated to support children's literacy development. A large scale

cluster randomised controlled trial (West et al., 2021) was conducted in 238 reception classes involving 1173 children, with 569 randomly allocated to the NELI intervention group and 571 allocated to the business-as-usual control group. The findings of the trial demonstrated the effectiveness of NELI in improving young children's language skills, with no effects of gender or EAL. High quality professional development was shown to be an important factor in the quality of implementation with training provided by Ekklan, a training consultancy independent of the research team (West et al., 2021).

Despite these positive effects for children in reception class, the concern remains that a high proportion of children are entering school with low levels of language placing them at risk of literacy difficulties. Early intervention prior to entry to reception offers the opportunity to reduce the numbers of children requiring intensive intervention in reception and beyond. Furthermore, due to the rapid development of language skills from age 3 to age 6, interventions may support in reducing the gap in language ability linked to social disadvantage (West et al., 2024)

With this in mind, a new oral language intervention, Nuffield Early Language Intervention Pre-school (NELI Pre-school) was created for children in nursery (West et al, 2024). This intervention was novel in including both whole class language enrichment and also targeted intervention for children who had been identified as having very low

language levels. The intervention involves 15-minute daily whole class sessions centred around a book of the week and including vocabulary, narrative and active listening activities. A high quality professional development programme and online hub provides support for staff implementing the programme. A large scale RCT (West et al, 2024) found that children receiving NELI Pre-school showed educationally significant improvements in oral language skills. The children who received enrichment and targeted intervention made smaller gains ($d = 0.16$) than the children who received only the whole class enrichment sessions ($d = 0.26$). The authors suggest that this may have been due to the children selected for additional support having had very low levels of language at baseline. Of particular importance, the authors note that they believe this to be the first RCT that has shown substantial improvements in oral language skills as a result of a whole class embedded language programme (West et al., 2024).

It is argued that on the basis of a large body of evidence gained over the past 20 years that children need to develop vocabulary that is rich in breadth and depth, (Dockrell et al., 2010) to learn how to understand literal and inferential language and to create and develop narratives. Dockrell and colleagues created Talking Time, an intervention focused on vocabulary, oral descriptions or recounts, generating predictions and making inferences from spoken language. The participants in this quasi-experimental study (Dockrell et al., 2010) were 142 children aged 4 years

who attended inner city pre-school settings in a borough that in 2009 was ranked the third highest in the country on measures of deprivation. Almost 50% of the population of the borough were reported to come from minority ethnic groups. The children were allocated to the Talking Time intervention, a contrast Story Reading Intervention, or a non-intervention group who received only the regular early years curriculum.

Children who received the Talking Time intervention participated in two 15-minute sessions for 15 weeks. Children receiving the Story Reading intervention participated in interactive story reading activities twice per week for 15 minutes over a 15 week period. Both interventions involved small groups of children who received 7.5 hours of intervention in total. The Talking Time group made gains in receptive language, expressive vocabulary and also sentence repetition. For the Story Reading group, gains were seen only in sentence repetition. A disappointing finding was that no significant differences were found in children's narrative skills despite the fact that these were taught directly and indirectly in Talking Time, and indirectly in the Story Reading intervention. Dockrell and colleagues hypothesise that this may have been due to the particularly challenging nature for young children of producing narratives.

The quasi-experimental evaluation of Talking Time in three pre-school settings in one London borough Dockrell et al. (2010) laid the foundations for a much larger cluster randomised controlled trial of Talking Time

(Dockrell et al., 2023). The recent large scale trial recruited children from schools across London and the North-East who were in the lowest 20% on measures of deprivation. Children aged 3-4 years were randomly allocated to the Talking Time intervention (n=250) or a business-as-usual group (n=252). The Talking Time programme content and professional development activities were updated from the earlier evaluation (Dockrell et al., 2010) to take account of recent research in oral language and oral language interventions. The small, mixed language ability group activities included Story Conversations involving interactive story reading, Word Play involving role play and games related to vocabulary, and Hexagons involving retelling of familiar situations with photo prompts and narrative discussion.

Schools were provided with mentor support and with a bank of resources and prompts that could be used flexibly. An important feature of the programme was the high level of professional development embedded throughout the programme cycle and the flexibility given to practitioners in programme delivery, a flexibility that could only be afforded as a result of the skills gained through rigorous professional development,

‘The updated programme was designed to equip staff with the knowledge and skills needed for flexible, high quality implementation using evidence-based ways of talking with children and support them in adapting and

embedding the programme in regular classroom practice,' (Dockrell et al., 2023, p.7).

This comprehensive professional development component in Talking Time seeks to develop practitioner skills in supporting oral language outside the confines of the intervention and for all early years children. In doing so, it heeds the recommendation from the findings of a systematic review of language intervention research with low income families (Greenwood et al., 2020) suggesting that 'researchers need to focus more on the procedures and tools designed to teach adults to use effective interaction and conversation strategies that go beyond just group training and manuals,' (p.14-15).

The updated Talking Time programme ran for 16 weeks, shorter than originally planned and with fewer participants and an altered staff training design due to the impact of COVID-19. In spite of the huge challenges presented by ongoing COVID-19 related staffing issues, the children receiving Talking Time made significantly larger improvements in targeted expressive vocabulary compared to the business-as-usual group. This was noted in the final report (Dockrell et al., 2023) as not only were these vocabulary items not explicitly taught, but the staff delivering the programme were unaware that these were target words as their use in the intervention materials was implicit rather than explicitly demonstrated. The evidence from this trial underscores the importance of high-quality

embedded professional development, also highlighted by West et al. (2024), that provides teachers with the knowledge and skills in oral language development and in strategies to support children with language weaknesses. These skills in turn enable practitioners to deliver effective intervention in a flexible and adaptable way and to use the knowledge gained from implementation and support to embed evidence-based oral language teaching in universal high quality provision for all early years' pupils.

It is encouraging to see that language and literacy research has begun to take a greater interest in evaluating the impact of oral language interventions for children identified with language weaknesses or identified as at risk on school entry, particularly children from low socio-economic backgrounds. However, this research has focused predominantly on the early years. Early intervention is undoubtedly critical and advocated in the SEND Code of Practice (DfE/DoH, 2015). However, despite early intervention, a significant proportion of children have persisting difficulties that continue to affect their literacy attainment and broader academic attainment in the later school years (Law et al., 2017). It is important therefore that intervention research attention broaden its focus to include children in the later school years. Interventions targeting oral language skills in the upper primary school years will now be examined.

4.3 Oral language interventions in Key Stage 2

Verlaan et al. (2017) argue that it is crucial that opportunities are increased to provide structured oral language learning opportunities not only in the early years but also in the middle school years. They propose that listening to the reading of texts enables pupils not only to hear good models of fluent reading, but also helps teachers to engage pupils in the forms of oral language that can facilitate the acquisition of literacy skills.

Given what is known about the impact of vocabulary knowledge on reading, it is unsurprising that a number of interventions for children in the upper primary school years have focused on improving vocabulary knowledge. This is particularly important as current instructional practices in primary schools do not include the direct teaching of vocabulary. It is argued that this further extends the gaps in vocabulary knowledge that some children experience on school entry, particularly children from disadvantaged backgrounds (Hart & Risley, 1995).

The National Reading Panel in the US (NRP, 2000) highlights the effectiveness of direct instruction of words. Furthermore, the report stresses the positive impact of making semantic links between words that have been directly taught. Nash and Snowling (2006) examined the most effective approach to teaching new vocabulary items to children aged 7 to 8 years with poor vocabulary knowledge. Although Nash and Snowling used only a small sample of 24 children, their findings have important

implications for the present study. Half of the participants were directly taught word definitions of new vocabulary with the other half taught a strategy to derive meanings from context. In the context group, children were provided with a new word before reading a story aloud together that contained the new vocabulary item. During the read aloud process children were required to look out for 'clue words', words which would support with the derivation of the meaning of the target word. Although children in both the definition and the context group improved equally in their knowledge of the taught words, at 3- month follow up, the context group demonstrated significantly better performance in expressive vocabulary knowledge and better text comprehension. Important to the present study in relation to the strategy instruction, at follow up the context group were able to independently utilise the taught strategy to derive word meanings in written text.

Understanding individual words is crucial for understanding spoken and written language. The breadth of vocabulary has been shown to be one of the strongest predictors of comprehension (Ricketts et al., 2007; Senechal et al., 2006). Nagy (2005) describes the reciprocal model between vocabulary and reading comprehension whereby knowledge of word meanings supports comprehension of texts and in turn text comprehension supports the development of broader knowledge of word meanings. In a systematic review of research examining the relationship between vocabulary knowledge and comprehension of written text, it was

found that in almost all studies analysed, instruction of word meanings supported comprehension of text containing the taught vocabulary (Wright & Cervetti, 2017).

Wright and Cervetti (2017) drew out key themes from their study of vocabulary interventions that used comprehension outcome measures. Instruction involving word meanings aided the comprehension of texts that included the target taught vocabulary item; teaching of word meanings that involved children in an active role in arriving at the word meaning was more effective than providing a definition; there is a lack of evidence that general comprehension skills can be improved by direct teaching of word meanings, even in the context of an intervention; no evidence exists from empirical studies to show that the teaching of one or two strategies to derive word meaning improves general comprehension skills.

In recognition of the vital role played by vocabulary knowledge in language comprehension, studies have examined the effect of vocabulary interventions on improving the depth and transfer, or generalisation, of semantic knowledge. A regression continuity design was used to evaluate whether a small group ten-week vocabulary intervention was effective for children aged 6 to 9 years with poor vocabulary knowledge (Dyson et al., 2018). Target vocabulary items were presented in multiple contexts and word games were undertaken to firstly identify situations positively identified with the target word and followed by opportunities for children

to generate their own examples of the use of the target word in context. Additionally, written activities were undertaken involving picture identification and selection of synonyms and antonyms. Results for the intervention group demonstrated that although the programme was effective in improving knowledge of the meanings of the taught vocabulary items, training did not generalise to untaught words. Wright & Cervetti (2017) suggest that future research should focus on exploring the impact of teaching pupils to monitor understanding of words and to use a range of flexible strategies to work out word meanings.

There is much evidence then that teaching children words in context is more effective than decontextualised vocabulary instruction. In a meta-analysis of the effects of vocabulary teaching (Stahl & Fairbanks, 1986) the most effective methods of vocabulary instruction were found to be those that involved both providing definitions of target vocabulary items and using context to derive meanings. Biemiller & Boote (2006) argue that when a child meets an unknown word in the context of an interesting narrative, there is an opportunity to infer the meaning of the word. In some instances, the context itself supports the child in deriving the correct meaning, and in other cases, a short explanation enables the child to access the meaning of the word. They suggest that directly explaining a word meaning also focuses a child on the new word that may otherwise have become lost in the flow of the narrative.

A systematic review of 67 vocabulary interventions found that interventions involving explicit teaching of vocabulary were more effective than implicit instruction (Marulis & Neuman, 2010). Even more effective were vocabulary interventions that included a combination of explicit and implicit teaching and where children had opportunities to practice words in a meaningful context. A significant and concerning finding of this systematic review was that the vocabulary gap between children from disadvantaged backgrounds and children from more privileged backgrounds was not closed by vocabulary interventions. Indeed, children from upper-middle and middle class backgrounds made significant gains in vocabulary knowledge from participating in vocabulary interventions. Marulis and Neuman (2010) express concern that unless vocabulary interventions are designed to understand and meet the needs of children from disadvantaged backgrounds, vocabulary interventions may in fact widen the vocabulary gap still further. This risks compounding the educational disadvantage for children from low-SES backgrounds, particularly those with language weaknesses. A subsequent meta-analysis of the impact of vocabulary interventions for at-risk pre-kindergarten and kindergarten children highlighted the extent to which poverty negatively impacts children's vocabulary development and the presence of poverty together with other risk factors heightens the level of disadvantage (Marulis & Neuman, 2013). Marulis and Neuman argue that this

knowledge should create a strong impetus to develop robust vocabulary interventions to support young children's language development.

Biemiller and Boote (2006) highlight the gap in current instructional practices in primary schools that do not include targeted vocabulary teaching as part of the curriculum. They argue that this gap in the curriculum further extends the disadvantage for children from low SES backgrounds who have already begun school with impoverished language (Hart & Risley, 1995; 2003).

However, although evidence suggests that vocabulary interventions have produced improvements in vocabulary knowledge and effective word derivation strategies, targeting vocabulary alone does not address the breadth of factors that may inhibit a child's understanding of spoken and written language. This could be related to the theory that although all poor comprehenders demonstrate elements of oral language weaknesses, the pattern of the deficit varies among children. Colenbrander et al. (2016) argue that individual differences should be taken account of when developing interventions for poor comprehension. The evidence from vocabulary interventions and studies of poor comprehenders suggests that interventions and instructional approaches for children with language comprehension weaknesses should include but not be limited to explicit vocabulary teaching.

Castles et al. (2018) argue that in addition to the knowledge of the meaning of individual words, an understanding of the relationship between words is required for the comprehension of spoken and written language. With this in mind, interventions which target vocabulary within the context of oral and written narratives offer the potential to be more effective than interventions targeting vocabulary alone. Children can learn about how words operate together and interact to produce meaning, while at the same time learning about grammar and narrative structure. Castles et al. (2018) argue that comprehension is essentially about inference generation with evidence from research indicating that children with a poor comprehension profile experience difficulties in the integration of ideas within a text in addition to weaknesses in the ability to answer inferential questions.

Evidence suggests that it is not the lack of background knowledge that inhibits inferential understanding in poor comprehenders, but rather the ability to access this information quickly. Cain and Oakhill (1999) found that when poor comprehenders failed to use inferential skills, they were able to demonstrate that they did possess the requisite background knowledge in response to direct questioning. Directly teaching children to make inferences and draw upon a range of background knowledge to understand a written or spoken narrative can support the development of comprehension skills. Studies have shown that children with weak comprehension skills are less likely to be able to build a coherent

mental model when reading or listening to a narrative as they struggle to utilise the clues provided and rely instead on the literal information provided (Cain & Oakhill, 1999). There is evidence from intervention studies that children with poor comprehension skills can be trained to develop inferential skills. Children can be taught to respond to questioning and to generate their own questions about a narrative, a strategy used in the reciprocal teaching described in studies by Roshenshine et al. (1996). The National Reading Panel (NRP, 2000) also highlighted the important role played by questions posed during reading instruction and questions generated by pupils in improving comprehension skills. An experimental study by Elbro and Buch-Iverson (2013) provided support for the effectiveness of interventions that teaching children how to utilise background knowledge to support inferential comprehension.

There is some evidence that narrative interventions can be effective for children with oral language difficulties (Petersen, 2011; Spencer & Petersen, 2020; Suggate et al., 2018). Narrative interventions are defined as interventions in which oral narratives are used to expose children to features of language that once modelled by the adult can be practised by the child (Petersen, 2011). There are some weaknesses in this evidence as the narrative intervention studies have frequently been developed in school by Speech and Language Therapists rather than larger scale manualised programmes or have been small studies involving few participants (Gillam et al., 2018). In a systematic review of narrative

interventions for children with language difficulties (Petersen, 2011) a cautious interpretation of the positive evidence for the effectiveness is advised. Petersen highlights the fact that narrative intervention research is still in the early stages and that to date the evidence of impact comes from studies with few participants, limited control measures, and a wide variation in the materials that are employed and the study procedures used.

Despite this, it is a developing area in language research and warrants some discussion here due to the relevance of the content of narrative interventions to the present study. A child's ability to orally produce a good narrative demonstrates an understanding of story structure, syntax and semantics (Suggate et al., 2018). Evidence from a longitudinal study carried out over a 15 year period with 58 children aged between 19 months and 16 years, the quality of children's oral narrative at school entry was a strong predictor of reading comprehension 10 years later (Suggate et al., 2018). Complex or infrequently used vocabulary is often contained in narratives which provide opportunities to develop comprehension skills. Furthermore, improvements in oral narrative skills can in turn lead to improvements in children's written narrative production (Spencer & Petersen, 2020).

A small scale study involving 6 participants with language difficulties aged between 6 years and 7 months and 10 years and 4 months, evaluated the

efficacy of a narrative intervention, Supporting Knowledge in Language and Literacy (SKILL) (Gillam et al., 2018). Four of the children received the SKILL intervention and 2 children were the control group. The intervention focused on understanding story elements, creating complex stories and developing metacognitive skills. The children who received the intervention showed improvements in production of language and the complexity of the stories they generated. Although a very small study, the manualised SKILL programme shares some features with the Oral Language for Literacy Intervention (OLLI) that is the focus of this thesis.

As oral narrative interventions have typically focused on programmes developed in school by clinicians, a key outcome of the studies evaluating the interventions has been a synthesis of the core principles of narrative intervention that have been found to be effective for children with language difficulties (Spencer & Petersen, 2020). These core principles could also apply to other oral language interventions:

1. Story structure building prior to vocabulary instruction and introduction of complex language structures.
2. Provide multiple examples to support generalisation.
3. Encourage children to actively participate in sessions.
4. Provide context for stories and opportunities to deconstruct and reconstruct.
5. Use visual supports to facilitate understanding of abstract concepts.

6. Corrective feedback should be delivered immediately.
7. Effective prompts should be employed.
8. Adapt learning, providing opportunities for extension and personalisation.
9. Organise opportunities for children to generalise learning.
10. Ensure that sessions are engaging and fun.

These core principles were used to inform the design of the narrative component of the OLLI programme. The development of the programme and the teaching principles that shaped the design will be explored in Chapter 5 of this thesis.

4.4 Oral language interventions in Key Stage 2

Very few studies have sought to evaluate the impact of oral language interventions in the upper primary years for children with weak oral language skills. In an attempt to address this gap, a feasibility evaluation of the Talk Boost Key Stage 2 manualised language intervention was conducted by Reeves et al. (2019). This evaluation involved 162 children aged 7-9 years from twenty-one primary school settings in Kirkby, York, Leeds, and Somerset. As with previous evaluations of Early Talk Boost (Reeves et al., 2018) and Talk Boost KS1 (Lee & Pring, 2016) participants were selected by the teachers, but in this study, a two-stage process was implemented to increase accuracy in the selection of appropriate children for the intervention. The first stage involved teachers following

identification guidelines supplied by the lead researcher. The guidelines focused on observed problems with attention, listening, vocabulary knowledge or understanding of language. Weaknesses in sentence construction, expressive language and socialisation were also included. The second stage required teachers to complete a non-standardised descriptor measure related to understanding of spoken language, vocabulary understanding and vocabulary use, storytelling and sentence production. Schools were assigned to the intervention or waiting list control group.

The children who received Talk Boost showed improvements in using and understanding spoken language, speech, understanding vocabulary, storytelling and sentence production in judgements made by their teachers. Reeves et al. (2019) advise caution in the interpretation of these findings as the teachers who made the language ability judgements at post-test were the same teachers who participated in intervention training and in the delivery of Talk Boost and were not blind to group allocation. Indeed, when children were formally assessed on measures sentence comprehension, narrative propositions, semantic decisions and naming, using assessors blind to group assignment, no significant differences were found between the children who had received Talk Boost and those in the waiting list control group (Reeves et al., 2019).

It is evident then, that when compared to the increasing number of robustly evaluated multi-component oral language interventions in the

early years, the upper primary school years are the poor relation. Oral language interventions in Key Stage 2 have typically focused on individual dimensions of oral language such as vocabulary, or narrative skills. Moreover, these studies have been of variable quality with limited generalisability due to small sample sizes, lack of transparency where randomisation of participants has occurred, and a lack of long term follow up, thereby missing opportunities to evaluate whether initial intervention effects are maintained. These studies have provided valuable insights into the components of oral language interventions which can inform the design and larger scale evaluation of oral language interventions that draw together the individual components into multi-component interventions that seek to address the complexity of oral language difficulties and the dimensions that constitute oral language competency. A Campbell Systematic Review (Donolato et al., 2023) found evidence of publication bias in studies evaluating oral language interventions and low powered trials. Donolato and colleagues stress the importance of pre-registering trials for full transparency. Precise descriptions of the randomisation process were frequently absent from studies together with information on the quality of measures used to determine pupil outcomes. Furthermore, of the 38 oral language intervention studies reviewed only eight included delayed post-test outcome measures, none of which evaluated follow-up intervention effects after 12 months.

Interventions that include a wide range of oral language components, such as grammar and syntax, and inferential and narrative skills have a greater likelihood of effectiveness and of supporting reading comprehension (Lervåg et al., 2018), and yet they are rare in the upper primary years.

It is almost 15 years since the first study to use an RCT design to evaluate the impact of a multiple component oral language intervention on children's reading comprehension (Clarke et al., 2010) and yet it remains the only robustly evaluated multi-component oral language intervention to date. Clarke and colleagues set out to evaluate the impact of three approaches to addressing weaknesses in children's reading comprehension. Firstly, a Text Comprehension (TC) intervention was developed focusing on strategies to aid children's comprehension of written text. Strategies included inference, teaching of metacognitive strategies and reciprocal teaching approaches. Secondly, Clarke and colleagues devised an Oral Language (OL) intervention focused on listening comprehension and vocabulary development and the teaching of strategies to support understanding and the production of oral language. The third intervention (COM) combined the TC and OL with a focus on the teaching of strategies that could be employed in both oral and written language and created explicit relationships between spoken and written language (Clarke et al., 2010).

160 children from twenty primary schools participated in the study. Eight children (aged 8 – 9 years) in each participating Year 4 class were randomly allocated to the TC, OL, COM interventions or a waiting list control group following initial screening. The range of the children's backgrounds was from very low SES to high. Children were screened on measures of listening comprehension, spelling and non-verbal IQ. The children in each class with the weakest listening comprehension scores, but with appropriate spelling and non-verbal abilities for their age were further assessed on measures of word reading and reading comprehension. Children in each school who showed the greatest difference between reading fluency and reading comprehension scores were invited to participate in the project. Participating children were assessed at baseline, half-way through the 20-week intervention, at immediate post-test and again 11 months after the interventions were completed.

All interventions, the OL, TC and COM led to statistically significant improvements in children's reading comprehension. The children with reading comprehension difficulties who participated in the two intervention programmes that focused on oral language skills (OL and COM) improved in vocabulary knowledge and reading comprehension. The greatest long-term improvements in reading comprehension were seen in the children who had received the OL programme. Clarke et al. (2010) hypothesise that this is because children receiving the OL intervention have almost twice the amount of training in oral language skills compared

to those receiving the COM programme. A significant finding was that the children who received the OL programme which included a greater focus on vocabulary teaching, improvements were seen not only in the vocabulary items that children had been taught directly in the programme, but also in words that were not directly taught in the programme, showing generalisation of knowledge of vocabulary knowledge and skills in deriving word meanings. Clarke et al. (2010) suggest that the OL intervention may have improved children's metacognitive skills, leading to an enhanced level of engagement language related learning and the activation of strategies that aid the learning of vocabulary and skills required for reading comprehension.

In the Oral Language intervention (Clarke et al, 2010) children are taught to use a range of strategies to solve word meanings, including the reciprocal teaching strategies (Palincsar and Brown, 1984). Although there has been limited research into the effectiveness of the reciprocal teaching strategies of clarifying, summarising, predicting and questioning, there is evidence to indicate the training children in the use of these reciprocal teaching strategies improves comprehension (Johnson-Glenberg, 2000). A recent systematic review of treatment outcomes of experimental interventions for pupils with Specific Poor Comprehension (Lee & Tsai, 2017) found that interventions incorporating reciprocal teaching produced the greatest impact. Metalinguistic intervention (Yuill, 2009) was also shown to be effective, providing support for the theory that instruction in high level

strategies for oral language can improve comprehension. Clarke et al. (2010) found that the novel implementation of reciprocal teaching strategies for spoken language in the group receiving the oral language intervention led overall gains in vocabulary and oral language skills. The reciprocal teaching strategies were used for the clarification of word meanings from context, providing further support for the findings of research demonstrating that children developed a greater understanding of word meanings from context than when taught definitions alone (Nash & Snowling, 2006).

There is evidence then, that oral language interventions in the early years can improve children's language skills, but more evidence is needed from robustly conducted pre-registered trials (Donolato et al., 2023) to assess whether multi-component oral language interventions in the upper primary years can ameliorate children's oral language weaknesses. Clarke et al. (2010) has provided evidence that the Oral Language interventions can improve vocabulary and reading comprehension in children in the later primary years, but a gap in the field remains: to explore the impact of multi-component oral language interventions on children's language comprehension and written expression.

The promise shown by Clarke et al. (2010) has informed the warrant for the primary research presented in this thesis which seeks to evaluate the

impact of a newly designed OL intervention, the Oral Language for Literacy Intervention, on a broader range of language and literacy outcomes.

Year 4 was selected as the focus for the OLLI programme as it is at this stage that children are using the reading and writing skills developed in Key Stage 1 and consolidated in Year 3 to expand their knowledge and their exposure to a range of vocabulary, grammar and syntax. They are then writing to express this knowledge and to increase the complexity of their expressive writing ahead of national testing in Year 6 and transfer to secondary education. Therefore, children in Year 4 with language weaknesses that are persistent or have not been identified earlier require additional support and evidence based teaching and intervention to maximise learning and progress in the final years of primary education.

The research aims and research questions of this thesis are now presented:

4.5 Research aims:

1. To develop an Oral Language for Literacy Intervention (OLLI) drawing on Clarke et al. (2010) Oral Language intervention.
2. To develop a fully manualised OLLI programme with bespoke narrative texts and resources.

3. To evaluate the effectiveness of a systematic, structured oral language intervention in improving the language skills of children in Key Stage 2.
4. To evaluate the effectiveness of a structured oral language intervention in improving the written expression of children in Key Stage 2.

4.6 Research questions:

1. Does the Oral Language for Literacy Intervention (OLLI) improve the language skills of children aged 8 – 10 years?
2. Does OLLI improve children's understanding of bespoke taught vocabulary?
3. Does OLLI improve children's understanding of bespoke untaught vocabulary?
4. Does the teaching of oral narrative skills in the intervention improve children's written expression?

4.7 Conclusion

There is growing evidence for the efficacy of oral language interventions, especially in the early years of children's education. Interventions involving vocabulary, grammar and narrative have been shown to ameliorate the language weaknesses of some young children. However, for those children who progress into the later primary years with persistent or undetected

difficulties, effective oral language interventions are less readily available as research interest to date has focused less on language support for children in the upper years of primary education. The focus of this thesis is to address this gap in the field by developing and evaluating the efficacy of the Oral language for Literacy Intervention (OLLI) targeting children as they progress to the final years of primary education and prepare for transition to secondary education.

5 Developing the Oral language for Literacy Intervention

5.1 Introduction

This chapter will describe the development of the design, structure, and content of the Oral Language for Literacy Intervention (OLLI). The theoretical underpinnings of the programme and the research evidence that informs the design, content and interactive activities developed for the programme will be explored.

5.2 Programme Design and Structure

OLLI is a 20-week fully manualised intervention programme designed to improve the language and written expression skills of children aged 8 - 10 years with language weaknesses. The programme is informed by an earlier Oral Language (OL) intervention developed by Clarke et al. (2010) but with new materials developed by the author of this study. The activities in the intervention developed by Clarke et al. (2010) were based around passages and poems that had been drawn from a range of different copyrighted sources. The fiction and non-fiction passages and poems in the OLLI programme have been written specifically for OLLI by the author, allowing greater control over the vocabulary used in the passages and poems,

varied grammatical structures in sentences, inclusion of figurative language, and alignment with the Key Stage 2 programmes of study for English and the foundation subjects. This control over the content also facilitated greater internal cohesion across the programme content.

The programme consists of three 30-minute intervention sessions each week, over 20 weeks. The first two 30-minute sessions of each week are delivered to the group of three children allocated to the treatment arm of the trial in each class. The final 30-minute session of the week is delivered to each child individually. Language and literacy interventions of 20-week duration, which operate on this model of two group sessions and one individual session each week, have been shown to be effective (Fricke et al., 2013; Bowyer-Crane et al., 2008; Clarke et al., 2010; West et al., 2021). Clarke et al. (2014) argue that the inclusion of an individual session each week was influenced by Vygotsky's (1978) theory of the Zone of Proximal Development (ZPD). This theory, which has influenced the concept of scaffolding in the classroom proposes that learning is maximised in the space between what a child can achieve independently and what a child cannot achieve without the guidance and support of another more skilled individual. A further rationale for the inclusion of individual sessions was the recognition, highlighted by Clarke et al. (2014), of individual differences in ability and experience between the children in the group. The individual sessions also allow the teaching assistant to personalise support, and

revise and consolidate learning in areas identified in earlier sessions that may have been challenging for a particular child.

A key feature of OLLI that is shared with the language interventions evaluated by Fricke et al. (2013), Bowyer-Crane et al. (2008) and Clarke et al. (2010), are that it is designed to be delivered by trained teaching assistants. Clarke et al. (2014) emphasise the value in using 'a model involving teaching assistants as partners to ensure sustainability of the intervention in the school system' (p.27), once the research project has been completed. Furthermore, the training provided supports the professional development of the support staff workforce in schools.

Research evaluating the impact of teaching assistants has demonstrated that they can be effective with appropriate training and when consideration is given to how they are deployed (Blatchford et al., 2012). The impact of TAs on pupil progress is particularly strong when they are trained to deliver interventions (Bosanquet et al., 2021). A review for the DfE (Carroll et al., 2017) found that when teaching assistants are well trained, they can deliver good quality interventions.

For educational provision to be effective for pupils, it is vital that there is high quality teaching delivered by skilled teachers with a sound knowledge of evidence-based instructional approaches supported by ongoing professional development (Rowe, 2006). This is equally applicable to teaching assistants, highlighting the importance of the training component

and ongoing support in the present study, where teaching assistants were equipped with knowledge regarding the instructional approaches and teaching strategies used in the intervention to support improvements in children's language skills.

Fully manualising the intervention provided additional support for TAs delivering the intervention. When there is a lack of clarity in the pedagogical support that they should provide for children, the effectiveness of their support is reduced (Jackson et al., 2021). Therefore, the manualisation of the intervention and the inclusion of all session materials and resources in the programme was considered vital to the effective delivery of the intervention and to treatment fidelity. In addition to maximising treatment fidelity, the manualisation of interventions also provides a framework for intervention implementation, facilitates consistency in delivery across different settings, and supports staff professional development (Blanche et al., 2011).

The potential disadvantages of manualising OLLI and providing detailed scripts for each of the 60 intervention sessions were considered.

Intervention outcomes are also influenced by the quality of the interaction and rapport between the TA and the children. Manuals can impose rigidity and constraints on the practitioner and can interfere with the relationship between the practitioner and pupil (Beutler, 1999). This potential disadvantage of manualising OLLI was outweighed by the benefits that it

offered in terms of treatment fidelity and reproducibility. Additionally, the TAs delivering OLLI were existing school support staff who would have been familiar to some extent to the children, thereby reducing the potential impact of any rigidity in the delivery of the scripted sessions on the relationship between TA and children. Blanche et al. (2011) suggest that manuals could be designed that are structured but which do allow some flexibility in delivery. Adopting a structured yet flexible approach in the use of the OLLI manual may have had the potential to increase the quality of the interactions between TA and child and the fluency of their delivery style. However, with many practitioners involved in the present study likely to be novices in language intervention delivery, a flexible approach was deemed not to be appropriate as it posed a significant risk to treatment fidelity.

Dockrell et al. (2023) argue that allowing a more flexible approach with a less strictly scripted manual can lead to greater growth in language skills than the use of fully scripted manuals when combined with effective ongoing professional development. Due to the author having no additional support for professional development, monitoring and support over the duration of the programme delivery, it was deemed necessary for fidelity reasons to provide detailed scripts for each session. The risk of individual TAs adapting delivery if a more lightly scripted manual was used was believed to be too high and to potentially have a greater impact on the reliability of the findings.

The size of the groups of children receiving the intervention was also deemed to be important. In the York Reading for Meaning Project (Clarke et al., 2010) the intervention was delivered to pairs of children. It was believed that there was great benefit to increasing the group size to three children for the present study for a number of reasons. Firstly, given the research evidence regarding the benefits of peer support and scaffolding (Tinggie et al., 2023), having three children in the group creates more opportunities for children to learn through both peer-to-peer interactions and interactions with the TA. Peer interactions can aid learning as children can provide definitions and approach problems using language in a way that other children can access (Göncü & Gauvain, 2011).

Secondly, there is evidence that group sizes matter in maximising pupil outcomes. In a review of interventions for reading difficulties (Vaughn et al., 2010), programmes delivered on a one-to-one basis and with one adult and three children were found to produce greater outcomes than interventions with larger group sizes. Indeed, in many cases, the outcomes for groups of three children, a more cost-effective option and a means of targeting more children with identified difficulties, the outcomes were similar to those for one-to-one interventions (Vaughn et al., 2010). OLLI combines sessions with groups of three children and individual sessions, thereby maximising the opportunities for all children to engage in peer-to-peer and adult-child interactions. In this way, guided by the session scripts, the TA is able to become, 'a facilitator of learning... and to provide

opportunities for individual learners to acquire knowledge and construct meaning through their own activities, and through discussion, reflection and the sharing of ideas with other learners with minimal corrective intervention,' (Rowe, 2006). The individual sessions, then, provide opportunities for targeted support for each child. They facilitate the ongoing assessment and evaluation of the pupil's understanding of the content of the group sessions so that the subsequent teaching and learning is appropriately matched to the pupil's current understanding (Hattie & Timperley, 2007).

The small group size is also important to the creation of a safe learning environment. When pupils are in a learning environment in which it is acceptable to make mistakes, where sufficient time is allowed for pupils to solve problems and in which prompt feedback is provided, it is likely that children will be able to solve more challenging and complex tasks (Wass & Golding, 2014). The design of the sessions in the OLLI programme creates safe learning conditions where children can make mistakes, where they have time to solve problems, such as clarifying the meaning of unfamiliar words and understanding the meaning of figurative language, make predictions about the stories read to them, with modelling and support provided as needed. The scripts for each session include guidance on when to intervene and on correcting children when errors are made.

5.3 Theoretical framework

The design of OLLI is underpinned by social constructivist theories (Vygotsky, 1978). Vygotsky proposed that social interactions influence learning, and that knowledge is co-constructed when individuals come together in a social context. Vygotsky believed that language is a vital tool for communication and that language shapes cognitive development. Working in groups of three children, guided by an adult, children participating in the OLLI programme have the opportunity to use language to share their thoughts on the narratives read to them, to use prior knowledge and experience of the world to solve the problems encountered in the programme activities and to derive the meaning of the vocabulary items. In this way, they are able to develop their own language skills and to learn from the language shared by the TA delivering the intervention and from the other children in the group. The group then functions as what has been described as a community of learners (Göncü & Gauvain, 2011), where children work collaboratively and learn from each other, with the adult functioning as the expert facilitating the process of learning.

5.4 Scaffolding

The design of the OLLI programme as a small group intervention with individual sessions draws on the evidence-base of the effectiveness of earlier language interventions (Fricke et al., 2013; Bowyer-Crane et al.,

2008; Clarke et al., 2010; West et al., 2021). It is informed also by the evidence from a systematic review (Nind & Wearmouth, 2006) which demonstrates that the peer group can support the learning of pupils with special educational needs (SEN), and classroom adults can 'foster the co-construction of knowledge through scaffolding by, and dialogue with, peers' (p.119). The research on scaffolding in education focuses more heavily on adult-child interactions, with the more able adult supporting the child's learning. However, peer scaffolding has been found to have a positive impact on child learning (Tinggie et al., 2023). The most powerful design, then, is one that includes opportunities for both adult and peer scaffolding. This principle was adopted for OLLI. A study analysing effective ways of improving the quality of talk in primary classrooms in Britain and Mexico, (Rojas-Drummond & Mercer, 2003) found that children particularly benefit from learning that carefully integrates dialogue led by the teacher with interactions within peer groups.

Scaffolding is a fundamental teaching principle of OLLI. The use of scaffolding to motivate and encourage children to become independent learners is also designed to support with generalisation and far transfer of knowledge and skills outside the intervention. The term 'scaffolding' influenced by Vygotsky's Zone of Proximal Development (ZPD), (Vygotsky, 1978), was developed by Wood et al. (1976). Wood and colleagues define scaffolding the scaffolding process as the means by which the child can find

a solution to a problem, undertake a task or reach a goal that would be unattainable without support.

The role of scaffolding in pupil learning, in particular in relation to TA-pupil interactions, has received much research attention in recent years (Bosanquet & Radford, 2019; Bowles et al., 2018). The concept of scaffolding, as put forward by Wood et al., (1976) has since been further developed and refined (Radford et al., 2015; Bosanquet et al., 2021) with three types of scaffolding role proposed (Radford et al., 2015), all of which have been incorporated into the design of OLLI.

Radford et al. (2015) firstly proposed the repair role which relates to an element of learning that a pupil may struggle with. For example, difficulty in answering a question or responding incorrectly. If a child is struggling to provide a response, the TA can intervene with a hint or a clues that will aid the child in responding correctly. In the OLLI programme, the repair scaffolding role is utilised in vocabulary learning, clarification of unfamiliar words in the passages and poems read aloud, and in the think aloud process. In the think aloud process, the TA articulates their thinking as they read aloud, sharing their thoughts, predictions and questions about a text to support children to develop strategies to monitor their own understanding.

The second scaffolding function proposed by Radford et al. (2015) is the support role. Radford et al. argue that the support role is particularly

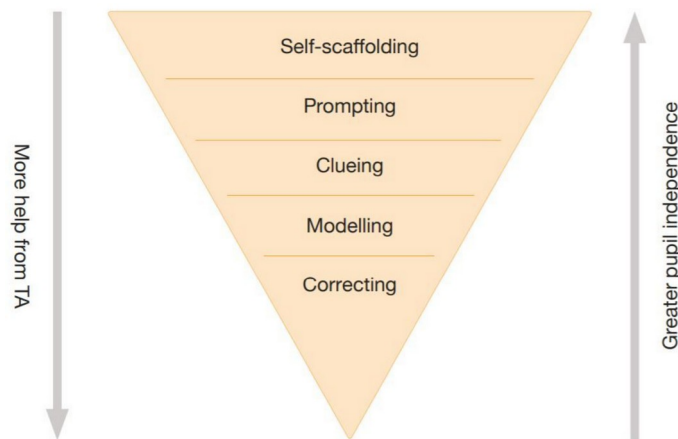
important in interactions with children with language weaknesses and difficulties with attention, emotion and behaviour regulation. In the support scaffolding role, the TA can provide emotional support, motivation and can encourage children to stay on task. The individual sessions in OLLI facilitate the use of the support scaffolding role, as the TA can motivate, encourage and promote the extension of children's ideas through personalised support.

Finally, Radford et al. (2015) propose the heuristic scaffolding role. This focuses on creating opportunities for children that encourage them to solve their own problems. The aim of heuristic scaffolding is that pupils will develop their own self-scaffolding strategies. Radford and colleagues argue that heuristic scaffolding supports children to take responsibility for developing their own understanding and to learn how to overcome barriers to task completion

The scaffolding framework (see Figure 5.2 below) developed by Bosanquet et al. (2021) has informed the guidance provided in the scripts for the sessions in the OLLI programme. An aim of OLLI is that children will become competent self-scaffolders. But in order to reach this goal, the TA needs to adapt to children's developing understanding by correcting, modelling, providing clues and by prompting the child rather than providing the answer. This is seen in OLLI in the clarification process for

new words and deriving their meaning and in the modelling of the comprehension process through the use of think alouds.

Figure 5. 1. *The Scaffolding Framework (Bosanquet et al., 2021)*



5.4.1 Metacognition

Self-scaffolding is closely associated with metacognition. Holton & Clarke (2006) define metacognition as, ‘any thinking that operates on a cognitive thought to assist in the process of learning or the solution to a problem’ (p.133). The teaching of metacognitive strategies is a key principle of the OLLI programme, designed to improve children’s independent ability to understand increasingly complex language as the programme progresses.

Becoming a metacognitive learner is supported by learning in a social context. Zimmerman (2010) suggests that self-regulated learning is often thought of as being an asocial practice. Zimmerman argues that contrary to this, the self-regulated processes of setting goals, applying strategies and

self-evaluating can be developed through teaching and modelled by adults and peers. Zimmerman asserts that self-regulated learners seek to learn and that they adopt strategies to solve problems and to achieve goals. This in turn increases motivation. However, for many learners, in particular those who find learning challenging, these strategies need to be explicitly taught and modelled with multiple opportunities for practice. This explicit modelling and opportunities for practice and consolidation of new learning is a key feature of OLLI.

The principles of applying metacognitive strategies to the comprehension of written text have been applied in OLLI to the comprehension of oral narratives. There is much research evidence that indicates that the explicit teaching of metacognitive strategies for understanding text aids comprehension. In a study conducted by Eilers and Pinkley (2006), children were explicitly taught to use prior knowledge to support understanding. Children were then taught to use this prior knowledge to make predictions and then to sequence the significant elements of the story. Of particular relevance to the present study, Eilers and Pinkley (2006) employed a carefully constructed pattern in the way in which the strategies were taught to the children. This began by introducing the strategy, modelling this in a group context and providing guided practice in a small group. The researcher then modelled how to use a graphic organiser to aid comprehension, followed by further guided practice again in a small group before the group went on to use a graphic organiser independently.

The use of graphic organisers is a metacognitive strategy that is threaded throughout OLLI. It is initially introduced in the second week of the programme. The TA scaffolds the process of generating ideas about the word of the day, 'necessity' and items that children might see as necessities for the classroom, before children complete a graphic organiser using a prepared template. As the programme progresses, the children use the graphic organiser model to organise their ideas but begin to create their own graphic organisers as they become more familiar with the process.

5.4.2 Think-alouds

Central to the modelling of metacognitive strategies to aid comprehension of oral language in OLLI is the use of a think aloud protocol. This explicit demonstration of the processes involved in deriving meaning from text, or in the case of OLLI, from oral passages read aloud to them by the TA, has been shown to be effective in improving the literal and inferential skills of children with impairments in receptive and expressive language (McClintock et al., 2014). Defining think alouds as 'verbal reports of thoughts during or immediately following a task,' (p. 639), McClintock et al. (2014) highlight the benefits of adopting a think aloud procedure to support improvements in inferencing skills in both teaching and intervention, particularly for children with language difficulties.

OLLI training included a focus on the use of think alouds in each of the four reciprocal teaching (RT) strategies, clarifying, summarising, predicting and questioning. A think aloud protocol was developed for the programme and included in the programme resources. TAs were encouraged, both within the training and in follow up calls, school visits and observations to use the prompts with the children to develop their effective use of all four strategies.

5.5 Reciprocal Teaching

Reciprocal teaching (RT) developed forty years ago (Palincsar & Brown, 1984) has been extensively researched in relation to reading comprehension skills (Rosenshine et al., 1994; Thurston et al., 2020). However, the impact of applying RT strategies to spoken language has received little research attention. Clarke et al. (2010) adopted a novel approach in including RT with spoken language in their language intervention, an intervention which improved children's reading comprehension skills. The present study seeks to evaluate whether the RT strategies applied to spoken language in OLLI can lead to improvements in language comprehension. RT is sometimes thought to centre solely on the four specific strategies of clarifying, summarising, predicting and questioning. However, it is suggested that these four specific strategies encompass just one of three core principles of RT (Juhkam et al., 2023)

Juhkam et al. (2023) offer two additional principles that are fundamental to the RT method. Explicit instruction through modelling of the four strategies during the reading process, and opportunities for pupils to practice using these strategies in group contexts are necessary for full implementation of RT. These three RT principles have been integrated into the design of OLLI, with each RT strategy introduced and modelled by the TA before the children have opportunities to practice using the strategies in both group and individual sessions.

5.5.1 Clarifying

In the first session of the OLLI programme, a group session for three children, the RT strategies of clarifying is introduced, with RT cards designed for the programme to signal the use of the strategies and to remind children to use them. Firstly, clarification activities are introduced as a fun activity and are linked to the reward system where children receive praise and rewards for employing taught strategies. The children are each provided with a clarification card before the passage is read aloud to them.

Figure 5. 2. *Clarification Card*



The session script guides the TA to share and model the clarification strategy, having provided each child with a clarification card before the passage is read aloud to them.

Figure 5. 3. Clarification Activity from Week 1, Session 1

Clarification activity

Show clarification icon. Give each child a clarification image card. Say, “Now I’m going to read the passage to you again and this time we are going to play a game. Every time you hear a word, you’re not sure of or you don’t understand I want you to raise your clarification card. If anyone puts up their card whilst I’m reading, I will stop and together we will try and work out what the word means. Do you understand?”

Read the story again. If the children do not raise their cards, model it when you read the word *refuge*. If children do not ask for clarification of any words, ask if they know what ‘engrossed’ means. Encourage the children to tell you what they think this word might mean in the context of the story. Provide the correct meaning as necessary. Encourage children to seek clarification of words that they don’t understand by linking this to the reward system. Ask the children if they know what ‘ambled’, ‘venture’ and ‘replace’ mean in the context of the story. Provide the correct meaning as necessary.

It was important to introduce the clarification strategy early in the programme to maximise the opportunities for children to develop language comprehension skills and to learn how to derive the meaning of the Tier 2 words selected for the programme that had been embedded in the programme narratives and poems. Furthermore, it was imperative that children were taught and encouraged from the start of the programme to monitor their own understanding. However, in developing the scripts for the sessions, account was taken of the fact that it may take time for the children to feel comfortable and confident to seek clarification of unknown words, so the TA is reminded to model the strategy.

Figure 5. 4. *Clarification Activity from Week 1, Session 2*

Clarification activity

Show Clarification icon and give each child their own clarification image card. Say, "Now I'm going to read the passage to you again. Every time you hear a word you don't understand I want you to raise your clarification card. If anyone puts up their card whilst I'm reading I will stop and together we will try and work out what the word means. Do you understand?"

Read aloud passage 1.2 again. If the children do not raise their card, model it when you read the target word apprehensive. Repeat for aware, astonished, reflected and tremble.

Children are encouraged throughout the programme to seek clarification of words that they do not understand from the passages read to them by raising their clarification card. This is designed to encourage the children to gain an understanding of the passage at the individual word level and the global text level. An additional benefit is that the other children in the group can benefit from the process of working out together what the individual words mean, using context together with prior knowledge and experience.

As the programme progresses and the children become more confident and competent at using the clarification strategy to aid understanding, activities are provided for children to independently solve the problem of deriving the meaning of unknown words. For example, in the Week 19 individual session, children are provided with a piece of text to follow while it is read aloud to them. They are then required to try to work out the

meaning of a number of highlighted words, using prior knowledge and context.

Figure 5. 5. Clarification Activity from Week 19, Session 1

Clarification activity

As I entered the room, I caught sight of the giant monster. He was so huge that the towered over the children in the room. In spite of his size, the monster appeared petrified of the large number of little people around him. He was so scared that he suddenly let out a thunderous roar. It grew louder and louder. As the roar echoed around the room, the children began to huddle together in groups, trying to shield themselves from the horrendous noise. As the monster paused to take a breath, one of the children began to hum. Gradually, the rest of the children joined in. This continuous low hum distracted the monster. He found that he could no longer roar. The monster covered his ears with his large fluffy paws before closing his eyes and sinking slowly to the floor. The children quickly seized upon the opportunity to escape.

5.5.2 Summarising

Oczkus (2010) asserts that opportunities to practice the summarisation strategy have been shown to improve the comprehension of both fiction and non-fiction texts because the process of summarising aids children in building a global understanding of a text. Summarisation is introduced briefly in the first group session of the programme. Having heard the first of three passages about Charlie's Adventure read aloud to them, the children are given a summarisation card (see Figure 5.8 below) and asked to represent in a drawing the main events in the story so far. This provides

an opportunity for the children to create a visual summary before the concept is developed requiring summaries using oral and written language.

Figure 5. 6. *Summarisation Card*



The process of developing summarisation skills in OLLI is carefully scaffolded. In the second group session of the programme, the children are asked to recall what summarisation means and to undertake an activity which requires them to supply missing words to complete a summary of the story so far.

Figure 5. 7. Summarisation Activity from Week 1, Group Session 2

Summarisation activity

Give out a copy of Resource 1.2(ii) to each child with a flow chart of the story so far.

Show Summarisation icon. Ask, “Does anyone know what the word summarise means?” If no response, say “it means to shorten the story, but we have to keep all the main ideas so that the story still makes sense.”

Say, “There are three boxes on the sheet, and I would like you to fill in the gaps in the three boxes to summarise the story of Charlie’s Adventure so far. We will fill in the final box in the next session. Here is your picture from last session to help you.” (Give out pictures from last session).

The summarisation strategy is then further developed through scaffolding and modelling in the subsequent individual session, allowing for personalised support for each child in developing their summarisation skills. Providing examples of summaries of the opening and build-up of Charlie’s Adventure and a discussion with the child about the summaries supports both the TA and the child as they work within the child’s Zone of Proximal Development (Vygotsky, 1978). The child is encouraged to engage in metacognitive processes as they develop summarisation skills through the process of interactive support with the activity.

5.5.3 Predicting

In the first group session of the fifth week of the programme, the RT strategy of prediction is introduced (see Figure 5.10). The children are

given prediction cards and encouraged to focus on predicting what will happen next in the story.

Figure 5. 8. *Prediction Activity from Week 5, Session 1*

Prediction activity

Show the prediction icon. Ask the children what they understand by the word 'prediction.' Clarify the meaning.

Say, "At the end of the story, the children were about to take their first steps on Mars." Re-read the last paragraph to the children.

Say, "Now I want you to predict what you think will happen when the children step out of the spaceship."

Give out plain paper and pencils and ask children to sketch what they predict will happen next.

Have a discussion about what the children think will happen next and talk about any differences between the children's predictions.

Children are encouraged to hone and develop their prediction skills as the programme develops and to provide evidence from the narrative that supports their predictions. The think aloud protocol guides the TA in scaffolding this process for the children.

5.5.4 Questioning

Questioning is the final RT strategy introduced in the programme due to the more complex skills required to generate questions. Questioning and responding to questions is important for comprehension, but with RT, the focus is on supporting children through modelling to generate their own

questions. Generating questions allows children to consider the type of information that is needed to create good questions, to plan how the questions should be framed and then to test out the questions with peers in the group (Palincsar & Brown, 1986). Questioning directs children's attention to what they are learning, supports active engagement and encourages comprehension monitoring. Questioning also encourages children to activate prior knowledge to aid the comprehension process. In the OLLI programme, the focus early on is on question generation by the TA. This prepares the children to understand how to generate good questions that will elicit important and relevant information about the narrative and to support them to frame their questions appropriately. The focus then shifts as the programme progresses to children being encouraged to generate their own questions which facilitates greater engagement with the narrative (Palincsar & Brown, 1986).

In Week 8 of the programme, an activity is incorporated that introduces the children to question generation. Having listened to the fable of the Tortoise and the Hare, children are invited by the TA to generate questions about the story for other children in the group to answer (See Figure 5.11 below).

Figure 5. 9. Question Generation activity, Week 8, Group Session 1

Question generation activity

Take out Question cards and blank cards for children to write own questions.

Say, "For the next two weeks we are going to do a new type of activity which is all about making up questions. Coming up with questions about the things we hear helps us to concentrate on the meaning of what we are listening to."

Show the question cards and explain that each card has one of the 5 W's (what, when, where, why, why) that we will be using and 1 How cards and the blank question and answer cards.

Place 2 of each question card face down on the table. Ask each child to select a question card and a blank card (with room for question and answer) and then based on the question word on the card to write a question related to the text.

Re-read the text.

When all children have written their questions, they swap them with another child who then writes the answer.

Repeat so that each child has two opportunities to ask and answer a question.

Keep the question cards as they will be used in future sessions.

The children have the opportunity to practice and consolidate the skill of question generation throughout Weeks 8 and 9 of the programme. In the individual session of Week 9, further reinforcement and personalisation of support with question generation is provided in the individual session with each child. Having listened to a passage about the history of airflight, the child and TA generate questions about the passage to ask each other. This provides an opportunity for the TA to model good questioning.

5.5.5 Hotseating

Skill progression throughout the programme is encouraged through the increase in the complexity of the tasks and activities that children undertake in question generation. It is important to ensure that the activities are not excessively repetitive but that they develop and extend children's metacognitive skills through fun tasks which encourage greater engagement with the oral passages and poems. Pupil generated questions result in deeper learning and increased engagement (Tofade et al., 2013).

Hot seating, in which a child takes on the role of a character from a story or poem and is asked questions by other children and must respond from the perspective of the character they have taken on, provides an excellent means of involving children in question generation to deepen engagement with the content of the oral passages. Hot seating has been shown to increase children's motivation and improve comprehension (Salih, 2020).

Hot seating in the context of a poem in Week 12 of the programme offers the opportunity to promote engagement with a different form and structure of linguistic expression. It has been argued that poetry possesses unique features which offer a particularly powerful means of scaffolding oral language skills (Hadaway et al., 2001). These features include its brevity, rhythm, fixed content, strong imagery and the powerful emotional connection that it provides. Moreover, with OLLI's focus on developing children's attention and listening skills, poetry offers an opportunity for

children to focus very closely on the rich vocabulary used and to deepen engagement through the strong rhythm and rhyme of the poems written specifically for OLLI.

In Week 12 of the programme, the children listen to a poem about The Monster in the Cupboard. The children are invited to take it in turns to occupy the hot seat pretending that they are one of the characters in the poem. The other children in the group then ask them questions about how they are feeling at this point in the poem. This promotes the development of the expressive language skills of both the children asking the questions and the children responding to these questions. All children have to consider how to frame their questions, to try to devise good questions that will elicit important and interesting information about the characters' feelings and to then express this clearly in spoken form.

5.6 Selection of OLLI taught and untaught vocabulary

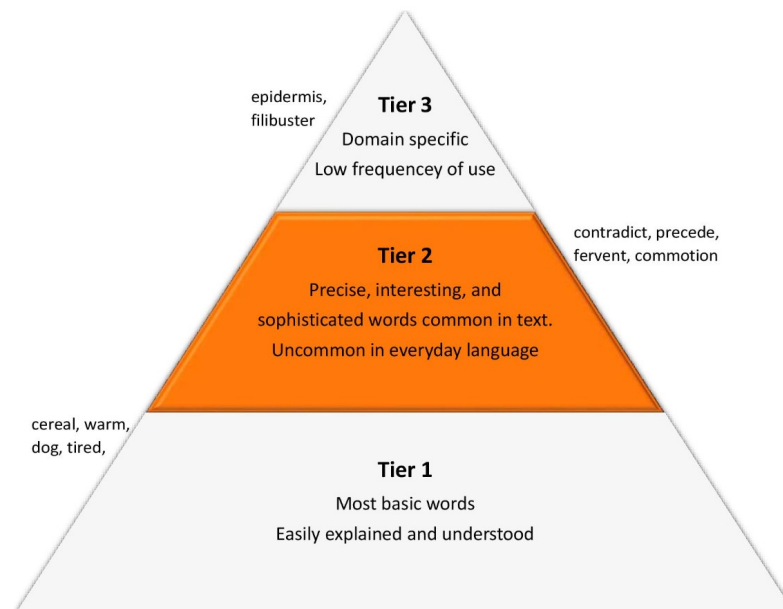
The focus will now move from the structural elements of the narratives at the text level to the word level and a discussion of how the vocabulary was selected for the programme. An explanation will first be given of the process whereby the bespoke vocabulary items were selected before moving on to describe how the untaught vocabulary was embedded into the narratives and poems to increase children's exposure to rich and varied Tier 2 vocabulary.

Vocabulary plays a critical role in children's language development (Dockrell et al., 2023) and challenges in acquiring vocabulary in early childhood has adversely affect later literacy development (Baumann, Kame'enui, & Ash, 2003; Oulette, 2006; Ricketts, Nation, & Bishop, 2007). Creating bespoke narratives and poems for OLLI facilitated the opportunity to carefully select and embed rich vocabulary that children could be exposed to through the read loud by the TA. Beck and McKeown (2001) assert that in reading aloud to children, teachers should make the best use of the sophisticated vocabulary found in high quality texts and then use these words as the basis of explicit word level vocabulary investigations.

The selection of sophisticated vocabulary was drawn from what are defined as Tier 2 vocabulary Beck, McKeown and Omanson (1987) propose that vocabulary is organised into three levels or Tiers on the basis of exposure, acquisition and utility (see Figure 5.10 for a visual representation of the vocabulary Tiers). They suggest that at Tier 1, we find words such as 'baby,' 'dog', 'play', that is, words which are in common usage in oral language. These high frequency spoken words quickly become familiar to children in daily life from a young age and therefore do not need to be directly taught. Tier 3 words, on the other hand, are words which are not frequently encountered in spoken language and are usually found in very specific contexts. Tier 3 words include topic vocabulary such as, 'chlorophyll', 'hydraulic', 'hypotenuse'. Beck, McKeown and Kucan (2013) suggest that due to the complexity and limited utility of Tier 3 words,

instruction in their meaning is best undertaken in the specific domains in which these words can be understood and applied.

Figure 5. 10. *The Three Tiers of Vocabulary Beck, McKeown & Omanson (1987)*



Beck and colleagues argue that instructional attention should be directed at Tier 2 words. Unlike Tier 1 words which children will frequently encounter, Tier 2 words are less likely to be heard in general conversation but are highly useful words that can be used in multiple contexts. Tier 2 words such as 'include,' 'fortunate,' 'complex,' 'retrospect' are likely to be used in mature conversations and in literature and consequently less likely to be learned by children independently. They argue that the high utility and generalisability of Tier 2 words and their impact on oral skills renders them worthy of a direct teaching focus.

In deciding which words to teach and include in the OLLI programme and how these words should be taught, the recommendations of the National Reading Panel (NRP, 2000) were followed. The specific findings that informed the design of the passages in relation to vocabulary content and to the vocabulary activities were:

- Incidental learning of vocabulary can occur during the reading of stories or by listening to stories read aloud and may be aided by repetition, the richness of the text and a pupil's motivation.
- Learning gains are greatest following multiple exposures to vocabulary items.
- Vocabulary should be taught in rich contexts and should include words with high utility across multiple contexts.
- Active engagement in vocabulary activities influences the learning of words.
- A variety of instructional methods should be used to maximise vocabulary learning.

With approximately 7000 Tier 2 word families for children to learn (Beck et al., 2013) the task of selecting appropriate words which could be embedded in a natural rather than a contrived manner in rich fiction and non-fiction passages and poems and which would lend themselves to engaging vocabulary activities was challenging. An analysis of the huge variety of Tier 2 word lists from the United Kingdom (UK) and the United

States (US) was undertaken. The vast list was then narrowed down to words which were categorised as high utility for children aged 8-10 years and which could be included in the rich passages being written by the author of this study for the OLLI programme. A long list of words was created before a final selection of 53 words was selected. Table 5.1 below presents the taught vocabulary from the programme.

Table 5. 1. *OLLI Bespoke Taught Vocabulary*

TAUGHT VOCABULARY	
refuge	revision
apprehensive	hindsight
transform	relieved
necessity	obstruct
evacuate	prepare
efficient	regret
persistent	challenge
fantasy	ancient
create	advice
reluctant	memory
discover	intricate
rotate	analyse
explore	intrigue
protect	suspicious
generate	significance
curious	investigate
essential	coincidence
analyse	unlikely
observe	witness
anticipate	evidence
hesitate	complex
typical	apologise
construct	similar
catastrophe	category
determined	communicate
ambitious	identical
encourage	quest

The selection of verbs included in the bespoke taught vocabulary items was also informed by research demonstrating the importance of children learning words with complex argument structures. Argument structures refer to the specific role that words have in a sentence, for example, action, agent or attribute, and the extent to which particular words have an obligatory role in the sentence (Hulme & Snowling, 2009). Hulme and

Snowling highlight the challenge to children's learning presented by understanding the argument structure in sentences. They suggest that children need to learn how the argument structure functions in language in order to develop the ability to express themselves in correctly formed sentences, and to support them to figure out the meaning of unfamiliar words in sentences, in particular, the meaning of verbs (Hulme & Snowling, 2009).

Learning about the argument structure of verbs presents a particular challenge for children with language difficulties (Ebbels et al., 2007). It follows therefore that children with language weaknesses would benefit from support in an intervention such as OLLI should to learn verbs with complex arguments structures. This was taken into account in the selection of the Tier 2 words that formed the bespoke taught vocabulary in the programme, such as, 'transform,' 'create,' 'protect,' 'generate,' and 'construct.' The verb 'transform', for example, has a complex argument structure. This word is introduced as an explicitly taught vocabulary item in the story of *Charlie's Adventure* in Week 1 of OLLI, where the cat, Emerald, transforms into a giant cat the size of a panther. In the space adventure story in Week 6 of the programme, the word 'protect' another vocabulary item with a complex argument structure is introduced as the explicitly taught word. In the context of the story, the space creature, Marvin, is discovered hiding in on Mars and explains, 'I was...protecting myself from the clouds of red dust.' The children are not only directly taught these

words with complex argument structures but are invited to generate their own sentences using these words, with scaffolding and support from the TA.

In the first 9 weeks of the programme (27 sessions) the children learned a new word each day. The three sessions of Week 10, the end of the first ten week section of the programme, focused on the revision of all taught vocabulary so far. No new vocabulary was taught in Week 11, the first week of the second ten week section of the programme, as the children were given the opportunity to revise, reinforce and practise the words that they had learned. The children were taught a further 26 new words in Block 2 with the vocabulary section of all three sessions of Week 20 of the programme dedicated to the revision of all taught vocabulary. Revision of earlier taught vocabulary is embedded throughout the programme.

The words that were selected for OLLI were considered to be words that the children may potentially have heard before but would have been unlikely to know the meanings of. In line with Vygotsky's theory of the ZPD (Vygotsky, 1978), the words were chosen to present a level of challenge for the children but challenge through which they could be supported to derive accurate meanings through scaffolding and the application of taught strategies, including the RT strategy of clarification.

Beck & McKeown (2013) highlight three key criteria that should inform the identification and instructional selection of Tier 2 words. Firstly, they focus

on the importance and utility of the words, citing the words 'categorise' as an example as it can be used for a broad classification of items. Conceptual understanding is also important. These words indicate an overarching concept but include a more specific, precise detail. Finally, Beck and McKeown consider the teaching potential of a word, advising that Tier 2 words should not be unidimensional but that they should open the door to application to a broad range of contexts. These three criteria were applied to the selection of the vocabulary items for the OLLI programme.

For example, in the second group session of Week 4 of the programme, the word of the day is 'discover.' The word can be used in a range of contexts, it expresses a more precise, specific context than the more one-dimensional word 'find', and carries with it a sense of excitement and novelty. The example of the word in the context of a sentence provided in the session script for the TA to read to the children is,

'The archaeologist opened the tombs and discovered boxes of beautiful Egyptian jewellery.'

Beck and McKeown's three criteria test was applied to the vocabulary items selected for OLLI to ensure that the instructional potential of the words was maximised and that children would be able to apply newly learnt vocabulary to a range of contexts in both spoken and written language.

An extract from the fiction passage in the second week of the programme demonstrates how the taught word of the day has been incorporated naturally into the narrative and how in the context of a rich and engaging story, the children have been exposed to further untaught Tier 2 words which can be used in multiple contexts.

Figure 5. 11. *Tier 2 Vocabulary in Week 1 Session 2*

Clarification activity

Seeing the cat lying on the floor made Charlie think of home. It reminded him of his pet dog, who he had started to miss quite desperately. He liked animals and wanted this cat to be his friend. He wanted to reach out to stroke the cat, but the way the cat was looking at Charlie made him feel very apprehensive. He decided to talk to the cat before stroking him.

Using the script for the session, the TA introduces the word of the day, *apprehensive*. The format for the sharing of a new taught vocabulary item each session is followed throughout the programme.

Figure 5. 12. Visual supports for understanding the meaning of new words



The process of learning new vocabulary is carefully scaffolded. In this session, visual images to illustrate the word of the day are represented to support children in deriving the meaning:

Having discussed the experiences of the children in the images provided, and having had the meaning of the word explained, the children are encouraged as a group to make links with their own prior experiences of when they may have felt apprehensive. In the final session of the first week, the individual session, the child will be asked to recall the previous word of the day and explain its meaning.

In addition to the taught vocabulary item, the children are encouraged to seek clarification of any words in the passage that they do not know. If they raise their clarification card, the TA will support them using a think aloud approach to consider from the context what the word may mean.

Embedding a range of Tier 2 vocabulary that could be used in multiple different contexts and encouraging children to seek clarification of unknown words from the oral passages was designed to not only support the development of a rich vocabulary that would improve spoken language and written expression but to develop children's awareness of how the meaning of these words was necessary to support their global comprehension of the passages and poems. Careful scaffolding and modelling of the process of deriving the meaning of bespoke untaught vocabulary from context aimed to support the far transfer of vocabulary knowledge.

The session scripts remind the TA the importance of working collaboratively to derive word meanings, 'Where possible try to work out the meanings together from context rather than supplying the meaning straight away.' The vocabulary problem solving process is carefully scaffolded with active participation encouraged from all children.

Importantly, the introduction of the taught vocabulary followed the same format in each session. As highlighted in the example below from the first group session from Week 15 of the programme, the TA introduces the

word of the day, they then repeat the word and are asked if they have heard the word before. The TA then provides the word meaning before the correct use of the word in the context of a sentence is modelled. The children are then invited to generate their own sentences using the target word.

Figure 5. 13. *Vocabulary Activity from Week 15, Group Session 1*

Vocabulary activity

Word of the Day: intrigued.

Write the word on the board and circle it.

Ask the children to repeat the word. Ask if anyone know what intrigued means or have heard the word intrigued before.

Give definition, 'something that is intriguing is something you are curious about or interested in because it is unusual.'

Give your own examples. Say, "I was very intrigued about.... because...." Ask children to give their own examples. Encourage repetition of the word throughout and give lots of praise.

Providing children with opportunities to produce meaningful language has been found to improve the comprehension of both vocabulary and grammar (Hopman & MacDonald, 2018). The children are then exposed to the target word in the context of the passage or poem read aloud to them. In a meta-analysis of vocabulary interventions (Wright & Cervetti, 2017) providing pupils with an explanation of word meanings before they are encountered in a text improved text comprehension.

5.7 Figurative language

Research has shown that the understanding of figurative language, which includes metaphors, similes, idioms and jokes, aids comprehension in typically developing children and begins in the middle childhood phase of development (Allen & Butler, 2020). However, children with language difficulties have been shown to struggle to understand figurative language (Bühler et al., 2018). Impairments in the ability of children with language difficulties to infer from context also hinders their comprehension of idioms, particularly unfamiliar or novel idioms (Cain & Towse, 2008). Cain and Towse argue that research should seek to ascertain how children with language weaknesses can be supported in the identification and application of relevant contextual clues to deriving the meanings of idioms.

The difficulties that children with Developmental Language Disorder (DLD) have in comprehending figurative language is caused by their general low language abilities (Bühler et al., 2018), raising the need for intervention and therapy that includes a focus on developing children's understanding of figurative language.

5.7.1 Idioms

The design of the content of the present study took account of the recommendations of Cain and Towse (2008) and Bühler et al. (2018) by not only including figurative language but by including high quality visual

images to provide contextual clues to aid understanding. In the opening passage of the programme, an impending sense of danger is created in the passage read to the children as the protagonist, Charlie, finds himself alone as night falls:

It suddenly began to grow very dark. The skies rapidly changed colour, and the sun disappeared, replaced by the silver glow of the moon. An owl hooted in the tree behind him. Charlie had butterflies in his stomach now. He began to walk faster and climbed the steep steps to the castle entrance. The old, oak doors creaked loudly as he gently pushed them open.

When the children have listened to the story and have completed the listening comprehension activity and the clarification and summarisation activities, figurative language in the form of idioms are introduced.:

Say, "Now we are going to play a quick game. In the story, I told you that Charlie had butterflies in his stomach. Does anyone know what this means? Did he have real butterflies flying around inside his tummy?" Praise and correct if wrong answer is given.

Say, "The name for this type of language is an idiom. That means that the phrase doesn't mean exactly what it says but has a strange meaning."

Show the Butterflies in the Stomach image 1.1(i). Pick one child to read out the idiom card 1.1(ii) 'to have butterflies in the stomach.' Give the other child the idiom meaning card to read out. Why do you think this phrase has been chosen to mean that someone is anxious and has a nervous feeling in the stomach?

Figure 5. 14. *Idiom Card*



The process of deriving the meaning collaboratively scaffolds the children's understanding and stimulates language production. The image and discussion of what the phrase *butterflies in your stomach* might mean is linked to the passage and the description of the character's feelings. The children are then invited to further problem solving of idiomatic expressions.

Figure 5. 15. Figurative Language Activity: Idiom Game

Figurative language activity

Say, "I have a game here called The Idiom Game and a pack of cards.

Say "In my pack there are a few more cards like this. We are going to play an idiom matching game. I am going to give each of you an idiom card, and I am going to place some idiom meaning cards face down on the table. I would like you to take it in turns to read out your idiom and then select a meaning card. When you have found the meaning card that you think matches your idiom, I would like you to read it to the group. Together, we will decide if we think it is the correct meaning. If we decide that it isn't the correct meaning, your partner can try to find the correct meaning.

Allow 3 minutes to complete this activity. Give lots of praise and encouragement.


Throughout the programme, the children play games with the idioms, using the pictures to support with understanding. As the programme progresses and the children begin to retain an understanding of the meaning, the pictures are withdrawn to encourage the children to become more independent and to draw on prior learning about the meaning of the idioms they have encountered (put in an example from later in the programme here where picture prompts are not used).


5.7.2 Jokes and Riddles

The programme also introduces jokes and riddles to the children to support with their understanding of figurative language. As with the idioms, the visual images play a key role in developing children's understanding of how and why the jokes work. In developing an

intervention which evaluated the effectiveness of an intervention to teach children how to comprehend the double meanings of jokes (Jackson et al., 2021) there was some concern that the visual images needed to aid comprehension required significant creative expertise and required a great deal of time to create. Furthermore, it was suggested that children may become over-reliant on the visual images and that an alternative approach may be for children to visually imagine how the two meanings could be combined visually, thereby removing the need for developing visual images and reducing the risk of dependence on visual prompts. In the present study, it was believed that high quality visual images were crucial to aiding understanding and to stimulating discussion. Moreover, children with language comprehension weaknesses and expressive language difficulties would be likely to struggle with the challenge of the combined visual imagining of two separate meanings and the subsequent articulation of how these images combined to create meaning.

Figure 5. 16. Figurative Language Activity: Jokes

<p>2</p> <p>What did one wall say to the other wall?</p>	<p>5</p> <p>What do you call a dinosaur who's fast asleep?</p>
<p>2</p> <p>I'll meet you around the corner.</p> 	<p>5</p> <p>A <u>dino</u>-snore!</p> 

<p>13</p> <p>What falls in winter without ever getting hurt?</p>
<p>13</p> <p>Snow.</p> 

Children with weak comprehension skills are believed to have low sensitivity to meaning and as a result the manipulation of language and the ambiguity in jokes may be a useful mechanism for improving comprehension (Yuill, 2009). Yuill suggests that comprehension may also

be aided by peer discussions and children's sharing their explanations of what the figurative language may mean. Zipke (2008) asserts that when children understand that it is possible for words and phrases to express meaning in more than one way, comprehension improves due to the flexible thinking processes required to conjecture potential meaning. Children must use metalinguistic skills to understand riddles and jokes. Zipke suggests that children's motivation and engagement with content and instructional approaches also impacts on outcomes. The figurative language activities and resources in OLLI have been designed to take account of the research evidence of effective instructional approaches, supported by engaging materials to aid understanding. Using jokes and riddles has been shown to improve children's comprehension with interaction with jokes and riddles also increasing the sensitivity to meaning that Yuill (2009) noted was low in children with weak comprehension skills.

There is some evidence that interventions that teach typically developing children how to comprehend the double meanings of jokes supports them in generalising their understanding to novel jokes (Jackson et al., 2021). Of particular relevance to the present study, in the very small study conducted by Jackson et al. the children were not asked to explain why the jokes were funny. It was hypothesised in the present study focusing on children with language difficulties, that creating opportunities for children to articulate and share their thoughts as to why the jokes were funny was central to improving their comprehension and expressive language skills.

5.7.3 Simile and metaphor

Children with language difficulties experience difficulties in comprehending metaphorical language. An understanding of similes and metaphors relies on an individual being able to notice similarities between two items which would generally be viewed as distinct (Norbury, 2005). This in turn requires the child to have some knowledge of the world and sufficient semantic network knowledge to understand the comparison being drawn. Norbury's findings highlighted the benefits of developing semantic representations and creating more explicit comparisons between items in metaphorical language when supporting children with language difficulties.

Metaphor has been described as a pragmatic concept which relates to the use of language that requires the application of cognitive interpretation processes (Carston & Wearing, 2011). Similes have been found to be easier for children to understand (Happé, 1995; Norbury, 2005) due to the explicit nature of the comparison being made between two items. Carston and Wearing (2011) consider the view of metaphor as implicit comparisons, a compressed form of simile. They argue that interpreting the metaphor requires the related simile to be located and for the interpretation processes needed for the comprehension of similes to be engaged. This is a complex process that presents challenges for children with language difficulties. It also places demands on working memory. It also requires children to understand what type of comprehension processes they need

to employ. Children with SEND may also experience challenges in understanding similes and metaphors as they try to apply standard comprehension strategies and therefore adopt a literal interpretation of metaphorical language (Semel & Wiig, 1984).

An investigation as to whether children with SEND experience differing levels of difficulty in the understanding of metaphor and simile demonstrated that similes are more easily understood than metaphors (Seidenberg & Bernstein, 1986). They suggest that this can be explained by the explicit nature of the comparison being made in a simile as the actual semantic component of the simile and metaphor do not differ. Of particular interest to the present study, Seidenberg and Bernstein argue that children with SEND have the requisite cognitive competence to appropriately combine the two relevant components in the comprehension of metaphors but that it is the metacognitive understanding that the interpretation of the metaphor is called for that aids metaphoric understanding in some children with SEND. Metaphoric comprehension also relies on children having broad knowledge of the world and good reasoning skills.

The programme passages were created to include a range of rich vocabulary and also to expose children to metaphors and similes in the context of stories and poems to develop their understanding of how metaphorical language is embedded in spoken and written language and

how it is used to create deeper meaning. From the beginning of the programme, they begin to listen to metaphors and similes. In the second group session of the first week of the programme, the TA reads aloud the second chapter of the story of *Charlie's Adventure*. Charlie, alone in the castle and surrounded by screeching bats is suddenly confronted by the vision of the cat, Emerald, growing to the size of a panther. Frightened, 'he wanted someone to rescue him, but realised that he would have to paddle his own canoe.' Direct attention is not drawn to the metaphor at this stage, but it was important for children to begin to be exposed to this form of figurative language early on in the programme.

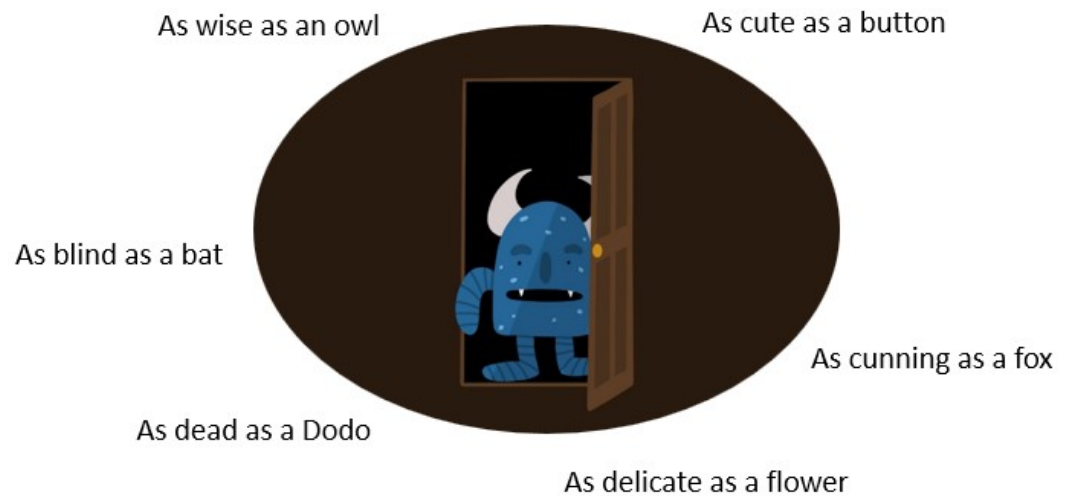
The children continue to be exposed to metaphorical language in the form of idioms. For example, in the individual session in the third week of the programme, the children hear about a boy called Archie McTavish, 'his head always in the clouds' so distracted that the 'teachers' words fell on deaf ears.' The poem is re-read to the children, and they are asked to try to identify the idioms. The script then provides the TA with an explanation of the meanings of these idiomatic phrases to share with the children.

Explicit activities related to similes and children's generation of their own similes was introduced prior to direct focus on metaphors due to the greater complexity involved in understanding metaphors that was outlined earlier in this chapter. In Week 11 of the programme, the TA introduces similes and scaffolds the process of learning how similes work by

comparing two things using the words 'as' or 'like,' before providing an explanation of the meaning of similes and a number of examples, such as, 'he is as strong as a horse.' Using the script provided in the session materials, the TA then tells the children that there was a simile in the story that they have just read to them. The children are told that the passage will be re-read aloud to them, and they should listen carefully and put up their hands when they hear the simile. The TA points out the simile, 'quick as a flash,' if the children do not identify it themselves. As a group they discuss the possible meaning of the simile in the context of the fiction passage. It is important that at this stage, the children are simply asked to identify the simile based on the definition of a simile provided. Having heard the simile and engaged in a discussion of the meaning, the children are then encouraged to try to create their own sentences using the simile they have heard. At this point, they are not asked to apply their new knowledge of how a simile works to other examples.

The process of simile development is carefully scaffolded in the same way as other oral language skills throughout the programme. The week after the similes were first introduced to the children, they listen to a poem, *There's a Monster in My Cupboard*, and are asked to identify the similes which could be used to describe the monster from the poem.

Figure 5. 17. *Figurative Language: Similes*



It is not until the 15th week of the programme, once the children have listened to four chapters of the story of *The Mysterious Disappearance of the Roman Plate*, that they are asked to create their own similes about one of the characters they have been hearing about in the story.

This follows the pattern used in the programme of exposure in a natural way on multiple occasions in the context of the narratives and poems, explicit discussion of the type of figurative language based on an example from a narrative or poem and application of the example phrase by the child in a sentence. Only after this modelling and practice on a narrow scale are the children asked to create their own similes independently based on characters that they have been learning about over a number of weeks.

Once the children have been provided with scaffolded opportunities to develop their understanding of similes and how they work in spoken and written language, the programme introduces the more complex language of metaphors. In Week 16 of the programme, children are explicitly introduced to metaphors. As with the similes, at this stage the focus is on explicit exposure with examples provided. This is followed in a subsequent session by a focus on peer discussion to work out the potential meaning of cooking related metaphor based on literal definitions provided. This also offers the opportunity for the children to build on and develop the collaborative problem-solving skills that have been encouraged to adopt with other figurative language and vocabulary activities.

To support children's developing understanding of metaphor, the activities in the programme also encourage them to draw on their knowledge of the world and semantic representations, factors which have been found to underpin metaphoric comprehension. The careful progression in exposure to elements of figurative language and application of taught problem solving strategies is designed to develop children's self-scaffolding skills (Radford et al., 2015) and generalisation to independent learning.

5.8 Creating the passages and poems for OLLI

The writing of the 60 fiction and non-fiction passages and poems read aloud to the children throughout the OLLI programme took account of a number of factors. These factors, underpinning the development of the themes and content areas of the fiction and non-fiction passages and poems, will now be described.

Firstly, in terms of the broad content and themes of the passages, account was taken of the content of the National Curriculum (NC) for Key Stage 2 for Science, Geography and History (DfE, 2013). It was deemed important to build both cohesion throughout the programme, but also to use a connected curriculum approach to support the children to use prior background knowledge to activate learning and support comprehension. In the context of OLLI, this was designed to deliver reciprocal benefits for both the intervention itself and for future curriculum learning and to support generalisation of knowledge between intervention and classroom learning. Some of the content areas around which the passages have been written will have been studied by the intervention children in Year 3 or may currently be being covered in foundation subjects in Year 4. Therefore, there are opportunities for children to activate prior knowledge in intervention sessions which include areas previously studied in class. However, other topics will not be visited in classroom learning contexts until the children are in Year 5 or Year 6. Giving the intervention children

exposure to these topics in intervention sessions in Year 4 will equip them with knowledge that can be activated across the curriculum in classroom sessions when they are in upper Key Stage 2. Extensive research was undertaken by the author of the present study to ensure that the scientific, geographical and historical information included in the fiction, non-fiction and poetry in the programme are factually correct and of interest to children aged 8 to 10 years. Examples of how these topics were integrated into both fiction and non-fiction passages and poems will now be given.

Topics covered in the NC programmes of study for Science (DfE, 2013) include Earth and Space, Living Things, and Habitats and Animals. In Week 4 of the programme a fiction adventure story involving a space adventure is introduced in which the class teacher and children are transported to space during a science lesson about the solar system. The story of *The Martian Adventure* is developed over the subsequent four weeks and although this is fiction, important facts about space are integrated into the narrative. For example, in the first session of Week 5, the children learn facts about Mars.

Figure 5. 18. *Integration of Scientific Facts into Non-Fiction Passages*

Catching sight of Olympus Mons

Peering intently through the binoculars, Sanjit shouted, "I can see Olympus Mons!"

"What's that?" asked Polly inquisitively.

"It's the largest volcano in the solar system," replied Sanjit confidently. "And it's three times higher than Mount Everest," added Mrs Sharp.

A group of children moved across the spaceship, following the direction of Sanjit's finger. As they did so, the spaceship slowed, and they found themselves looking directly into the giant crater...

"We can't land here," called Archie in a rather frightened tone. "We'd be swallowed up by the hungry volcano!"

Whilst this story is developed over four weeks, the individual sessions during that period introduce non-fiction passages focusing on elements related to space and the solar system.

Table 5. 2. *Non-Fiction Focus of Individual Sessions in Weeks 4 to 7*

To consolidate the new learning, the activities included in these individual sessions include the child completing the missing facts in a solar system fact file; creating a solar power fact file; to imagine what it would have been like to be the first man on the moon and to write a short description; and a verbal reasoning activity about the arguments for and against the existence of UFOs. These narratives and associated activities seek to not only equip the children with key facts about space and the solar system but also to engage them in thinking about topical issues related to energy and the environment. For example, solar power. Furthermore, they aim to give children the opportunity to both internalise and use vocabulary related to these topics. The vocabulary selection and the rationale for the specific words chosen will be provided later in this chapter, but the taught vocabulary items for the individual sessions in Weeks 4, 5, 6, and 7, 'rotate', 'generate', 'analyse' and 'hesitate', are multiple context use words. Three of these are associated with science, and therefore support children's general vocabulary growth as well as the growth of their science vocabulary specifically.

Engaging children and sparking their interest in a range of science topics relevant to their phase of education in creative ways significantly influenced the choice of topic covered in OLLI and the type of literary genre in which it was communicated to children in the programme. The level of the children's engagement strongly influences their deep connection with material covered and the extent to which this becomes embedded in their memory. Therefore, exciting the children about marine animals and their habitats, introduced in a story in Week 11 and revisited in riddle poems in Week 20 of the programme, proposed to deepen their engagement with content, language and form.

In Week 11 of the programme, the children listen to a story about a school trip to the aquarium in which they are introduced to a number of marine animals in captivity. The children in the story marvel at the sights of the colourful sea creatures.

Figure 5. 19. *Integration of science curriculum focus into fiction passages*

The Aquarium

Amy and Roberto were first through the turnstiles. 'This is incredible!' cried Amy. They could already see brilliant orange stripes on the clownfish in the glass tunnel above them. 'I've found Nemo!' chuckled Roberto as he signalled the clownfish fanning out its fins and darting through the cool, blue water. As the remaining members of the group made their way quickly through the entrance, children began to race in the direction of the underwater tunnels. Shrieks of excitement and wonder hung in the air as the children caught sight of the Sand Tiger Shark gliding slowly through the water in the tunnels above them.

Walking through the pacific-ocean tunnels, the children were silenced by the kaleidoscope of colours that surrounded them. The clear blue water was populated by the bright yellow, blue and silvery-white body of the Blue and Yellow Fusilier, the glowing orange of the Flame Angelfish...

Gazing down beneath their feet, the children could see the deep water below. Suddenly, as quick as a flash, a huge Nurse Shark came into view. 'Look', laughed Harry, 'it's got a moustache!' Mr Chopra explained that the whisker-like organs are called barbels and help the shark to locate food. The children were mesmerised.

Children's interest in marine animals is piqued in Week 11 with this fiction passage containing facts about these marine animals conveyed using rich multi-context Tier 2 vocabulary such as, 'fanning,' 'darting', 'gliding', 'gazing', 'locate'. The literary device of the simile, 'as quick as a flash' to describe speed of movement is also used here. Literary devices and metaphorical language are integral to the programme and will be discussed later in this chapter. Having introduced marine animals at this stage in the intervention the ground has been set to engage more fully with them in their natural habitat through poetry at the end of the programme.

In Week 20, the children are exposed to a fast-paced riddle poem, based on scientific facts about the octopus and how it navigates its natural marine habitat as both predator and prey. The children are tasked with identifying the sea creature from the facts that he shares about himself through the rhythm and rhyme of the poetic form.

Figure 5. 20. *Sea Creature Riddle Poem*

I'm eight-armed Oscar and very pleased to meet you
I'm a solitary creature, my friends are very few.
My sea buddies say I'm a really smart guy
And scientists often describe me as shy.

Unlike you humans I've got no bones
Pretty handy when squeezing through rocks and stones
I've not just one heart but actually three
And I'm the cleverest fellow in the deep blue sea.

I can navigate a maze to search for my dinner
My escape from the aquarium makes me a winner
I can open a jar from the outside
And even escape if I'm trapped on the inside!

Those cheeky seals often fancy me as a feast
But they don't realise that I'm such a clever beast
Once they draw close my black ink's prepared
I shoot it out behind me leaving predators scared.

I've got lots more tricks up my sleeve
Speeding through the water faster than you'd believe
If the eels and dolphins then give chase
With my turbo boost I know I'll win the race.

If the sand shark then spots me
I'll move on to plan B
I can change my colour in the blink of an eye
Or alter my skin texture as the shark swims

Multiple context Tier 2 vocabulary, for example, 'solitary', 'squeezing', 'navigate', 'escape', 'realise' and, 'cause' and metaphorical language, 'in the blink of an eye', are again embedded in the poem to support the

development of children's vocabulary knowledge and understanding of figurative language to support improvements in language comprehension.

The NC programmes of study from history (Department for Education, 2013b) include learning about World War II, the Roman Empire and the Romanisation of Britain, and the legacy of Greek or Roman culture on art, architecture or literature. Programmes of study for geography (Department for Education, 2013c) include physical geography such as earthquakes and volcanoes and human geography, including energy. Consideration to these topics has been taken in the writing of the passages. Examples of how these topics have been woven into the narrative development will now follow.

The passages in Week 2 of the programme focus on World War II, involving both non-fiction narratives about growing up during the second world war and evacuation, and a fictionalised letter from an evacuated child to her mother, describing her experience of life on farm in Devon. The legacy of Roman art and are used as a backdrop to the extended mystery story, *The Mysterious Disappearance of the Roman Plate*, that is read to the children over a six-week period in the second half of the OLLI programme.

The Key Stage 2 areas of study for both history and geography have been integrated into both the fictionalised story about the theft of the Roman plate from the British museum and the quest by two young children to identify the thief and convince detectives of his guilt. On arriving at the

‘imposing black gates outside the British Museum’, the father of one of the protagonists of the story shows his knowledge of Greek history and architecture.

Figure 5. 21.*Learning about Greek History and Architecture*

“Take a look at the architecture, kids”, said Dad proudly showing off his historical knowledge. “Those pillars are modelled on classical Greek buildings. And can you see the triangle above the pillars, with all those sculptures? They’ve borrowed that idea from the Greeks too.”

Once inside the museum, and wandering into the Ancient Greek exhibits, the children are given a greater insight into Greek art and mythology.

Figure 5. 22. *Learning about Ancient Greece*

Jenny was captivated by the Greek vases depicting scenes from daily lives in Ancient Greece, but Ricky wandered past them barely registering their existence. Ricky asked his dad if they could move on to the Romans, but Dad was busy looking at the sculptures and told Ricky not to be selfish as Jenny was evidently interested in discovering facts about life in Ancient Greece. Ricky grunted and shrugged his shoulders, unable to pursue his argument for a speedy exit from Ancient Greece. He sauntered in the direction of the Greek Gods. Looking at the detail in the images of Zeus and his daughter, Athena, Ricky was forced to admit to himself that this was actually quite interesting after all.

The legacy of Roman art and mythology and the Romanisation of Britain is embedded in the ongoing mystery story as the children venture through the Roman rooms of the museum, discovery important artefacts that reveal facts about Roman history and mythology.

Figure 5. 23. *Learning about Roman Art and Mythology*

“Wow, this is amazing” yelled Ricky, heading towards the glass case containing all the Roman coins from the Fishpool hoard. “Imagine finding this treasure! I think I know what I want to be when I grow up – an archaeologist.” “What’s that?” asked Jenny inquisitively. “It’s a type of scientist” replied her uncle. “They excavate areas where objects may be hidden to help us to find out how people used to live – people like the Romans.”

Before they reached the coins, Jenny gasped, “Look at this Ricky, it’s beautiful!” Ricky read the label, ‘The Mildenhall Great Dish.’ Jenny was right, it was beautiful. They peered more closely at the intricately engraved silver plate. “Who’s that in the middle, with dolphins in his hair?” asked Jenny. Ricky read the information beside the glass case. “It says that it’s Oceanus, God of the sea, which I guess is why he’s got dolphins in his hair....it also says that his beard is made of seaweed.” “I could spend ages looking at this...I love the detail in the pictures,” said Jenny.

The mystery story narratives occupy the two group sessions for the six-week duration of the story. The individual sessions from Weeks 13 to Week 16 of the programme, linked by theme to the historical context and physical geography of ancient civilisations, present non-fiction passages and related activities which invite the child to create fact-files and summaries of key historical events and the lives of those involved.

Table 5. 3. *Non-fiction historical and geographical focus of individual sessions in Weeks 13 to 16*

Session	Non-fiction historical and geographical focus
Week 13 Individual Session	Howard Carter - archaeology, art and Ancient Egypt and the discovery of the tomb of King Tutankhamun.
Week 14 Individual Session	The City of Pompeii - earthquakes and the eruption of Mount Vesuvius.
Week 15 Individual Session	The City of Pompeii – The excavation of the ruins of Pompeii and what we have learned about ancient life in the city.
Week 16 Individual Session	Volcano fact file – learning about what volcanoes are and the different types of volcano: active, dormant and extinct.

Once the mystery story has concluded at the end of Week 18, the children are introduced to the related Roman mythology through the retelling of the legend of Romulus and Remus, the legendary founders of the city of Rome. The inclusion of mythology aligns itself well with one of the statutory requirements of the National Curriculum (NC) for English for Years 3 and 4 (Department for Education, 2013a), that children should be ‘increasing their familiarity with a wide range of books, including fairy stories, myths and legends, and retelling some of these orally.

The children listen to the passages read to them in Week 19 and learn about the myth explaining how the city of Rome was formed.

Figure 5. 24. *Spoken Narrative Activity from Week 3, Individual Session*

The myth of Romulus and Remus

Throughout the ages, oral story telling has provided an important means of sharing stories and legends. These stories have helped communities to make sense of historical events and have supported people's understanding of how our countries and cities have been shaped and developed. Throughout the course of history, people have communicated wisdom about human experience through the telling of myths and legends.

The myth of Romulus and Remus has been used to explain how the city of Rome came to exist and why the Romans had earned the right to rule over others. Mars, the son of Jupiter, was the Roman god of war. He was a fierce god who was reputed to be one of the most worshipped of all the Roman gods. Mars married Rhea, a mortal woman, the daughter of Numitor. Rhea was reported to be a beautiful, charismatic woman who captured the heart of the handsome, menacing god, Mars.

The inclusion of this Roman myth based on an ancient tradition of oral storytelling also supports the focus on developing oral narratives, which is a focus of children's narrative development activities throughout the programme and will be discussed later in this chapter.

The content and themes of the passages and poems throughout OLLI have then been informed by the programmes of study and themes of the NC foundation subjects for Year 4 and lower Key Stage 2. In order to support generalisation of intervention learning back in the classroom, it was also important to ensure that the narratives and poems and the broad objectives of the programme sessions were aligned with the National Curriculum for English (Department for Education, 2013a).

The writing of the passages and poems, and development of the sessions and accompanying activities took account of the key objectives in the NC statutory framework for spoken language in Year 1 to Year 6. In line with these objectives, opportunities were provided in OLLI for speaking and responding appropriately to adults and peers, asking questions to develop understanding and to provide descriptions that are well developed and structured. The teaching of a range of strategies that children can draw on to develop their vocabulary were also included.

Although the OLLI programme focuses on oral language and was not designed to focus on the development of children's reading skills, the statutory requirements for reading comprehension for Years 3 and 4 were integrated into the design of the narratives and poems, the scripted sessions and the children's activities. An overarching objective of the statutory requirements for reading comprehension in lower Key Stage 2 is that children should be supported in developing a positive attitude to reading and to the understanding of written texts. The NC suggests that in order for these positive attitudes and comprehension to develop, children should listen to and engage in discussions about a range of fiction, non-fiction and poetry, to ascertain word meanings and to develop familiarity with texts which include myths and legends and fairy stories. By exposing the intervention children to adventure stories, mystery stories, myths and legends, non-fiction and poetry, followed by discussion and the teaching of reciprocal teaching strategies for spoken language, the programme design

aims to foster a positive attitude to both oral and written narratives and to increase children's motivation and desire to engage with literature.

5.9 Evaluating the appropriateness of the programme passages and poems

It was important to ensure that the range of narratives and poems and the genres covered would be engaging and interesting for the target audience of the intervention, children in Year 4, or more broadly, children aged 8 -10 years. To assess the quality of the passages and children's potential engagement, the passages were shared with a focus group that included a Year 4 classroom teacher, a Special Educational Needs Coordinator (SENCO) and Specialist Teacher, an Educational Psychologist and a parent of a Year 4 child. The parent who is herself a specialist teacher and SENCO also read the passages and poems to her child at home. Both parent and child provided feedback.

All members of the focus group provided positive verbal feedback on the content. The Year 4 parent noted that there was a good variety in the stories and poems and that the integration of fiction and non-fiction in the programme passages worked well. She felt that it worked well particularly because links were drawn between the content of the fiction passages and non-fiction across the sessions in the same week e.g. story set in space, followed by a factual passage about the first man on the moon. The parent

saw good cohesion and progression in text complexity across the programme in terms of themes and content. The SENCO felt that the passages and poems would be very engaging for the children, and that they provided good opportunities for both new learning and links to be drawn with prior learning. The teacher also felt that the passages and poems were appropriate in level and content for children in Year 4, but that some of the vocabulary may be challenging for Year 4 children, especially those with language weaknesses. This view was shared by the SENCO. The parent reported that the child enjoyed the stories that she read aloud to him, particularly the extended mystery story which 'he really got in to.' She also reported that he was fascinated by the poems. The teacher felt that the poems were very accessible due to rhythm, rhyme and pace.

Particularly detailed feedback was provided by a very experienced EP who undertakes a large amount of assessment work with children with specific learning difficulties:

I felt that the passages were very developmentally appropriate and engaging for what I guess I would call "middle childhood". The passages are tuned into the fact that the children have at this age developed a familiarity with the routine of school and in your stories this safe place often acts as a stepping board to more exciting things (Charon) and places (Space). It this age children test out moving away from their family and I think they will relate well to *Charlie's Adventure* where a family picnic leads to an adventure in a spooky house. I thought *The Rescue Plan* demonstrated the need for the children to have adult boundaries as laid down by Mrs Sharp but also to have adventures and come back to safety. I think they will like the being a little out of control (Charlie lost in the house), but it all works

out in the end. I think this blend of the routine with the imaginary will catch the interest of the readers.

For this age group Space and flight are strong areas of interest and the passages have a nice balance of facts (which young people are fascinated by) and adventure. I think they will be drawn in by the small, routine details such as having to zip their space outfits on as they will be able to imagine themselves being in such a position. I think Solar Power is very topical, and we know that young people are becoming increasingly vocal about the environment. I think the passages related to evacuation always tap into the imagination of children as they can relate to the feelings of young people of their age having to pack up and leave their home.

I think the children will enjoy the rhythm of the poems and explore those aspects within all of us which are a bit naughty in poems such as *Archie McTavish*. Children of this age are gradually becoming more discerning about their friendships and what they want in a friend and the passages reflect both the positive aspects of friendship (Polly and Sanjit/Martin and Marvin) but some of the issues (Milly Martin). The fables always tap into the interest of children as I think one of the first areas of interest and development for very young children is the naming of animals and as they get older having animals as characters frees the children as the animals can be more saintly or more naughty than themselves and so this gives them the opportunity to explore moral actions again in a safe way.

The passages have humour, and the stories end on cliff hangers, some more gentle than others but all leaving the reader wanting to know more. I also liked the following of regular characters, such as Archie, Polly and Sanjit. I think it will give the children characters they can relate to and want to learn more about. On this passage I particularly liked the way that the children were being explicitly asked to imagine as this is such a good strategy for increasing enjoyment and comprehension.

The feedback from practitioners, parent and child suggested that no major amendments were needed to the narratives and poems. The concerns raised by the teacher and SENCO regarding the level of difficulty of the vocabulary in the passages and poems was noted, but it was decided not to change the vocabulary as it was based on extensive analysis of Tier 2 vocabulary word lists for children aged 8 to 10 years.

5.10 Narrative structures and the Story Mountain

The programme narratives and poems are well aligned then with the statutory requirements for the spoken language and reading comprehension strands of the English national curriculum and draw on the topic areas of the Key Stage 2 foundation subjects. At the text level, the structure of the narratives and the poems plays a vital role in developing children's understanding of story structure. The fiction narratives and poems such as *There's a Monster in the Cupboard* use the story mountain structure. The story mountain at its basic level as used in Key Stage 1 classrooms has a beginning, middle and ending. In the first ten weeks of the OLLI programme, the story narratives adopt a four- part story mountain structure, an opening, build up, main event and resolution. The story mountain used in classrooms throughout the primary years utilises a common language and familiar concept which it is argued (Parsons et al., 2015) demystifies the narrative development process when the children are tasked with creating their own oral narratives.

The story mountain structure and imagery of a child progressing across the narrative mountain, aided by the posts signalling the opening, build-up, main event and resolution in the first ten weeks provides a visual scaffold for the child. Crucially, the narrative structure of the fiction passages read to the children directly reflect the structure and key stages in the story that the children are planning, developing and improving as the weeks

progress. Explicit teaching of the narrative structure and the application of the reciprocal teaching strategies of summarising what has happened at each stage of the mountain, predicting what might happen next and questioning the characters about their actions, emotions and interactions with other characters and events is vital in guiding and supporting the children's developing oral narrative skills.

For example, the first ten weeks of the programme, the children initially listen to the full story of *Charlie's Adventure* over three sessions in one week and discuss and engage in activities which examine the four part narrative structure. It was believed to be important at the start of the programme that the children listened to the complete story in one week, placing fewer cognitive demands on working memory and attention as they seek to clarify the meaning of new Tier 2 vocabulary and to summarise what has happened at each stage of the story.

However, as the children become familiar with strategies to aid them in clarifying new words and with summarising what has happened and predicting what might happen next in a story, the narratives become more complex and are extended over a period of four weeks. During this time, the children are developing and refining the plans for their own oral narratives in genres and themes of their own choice with the narrative stages of the story that children hear then informing their own story plans. The opportunity for children to choose which story theme to develop their

own oral narrative was provided to increase children's engagement with the task. Teachers have reported that children's engagement, intrinsic motivation and cognitive interaction with learning tasks are improved when there are given choices (Flowerday & Schraw, 2000) due to an increased sense of ownership and individual autonomy.

Presented with eight potential story themes in Week 3 of the programme, the choice of selecting the theme for the children's own oral narrative is carefully scaffolded. The children are asked to rate the story themes according to their preference. The children are given story frames for each story theme which outline the key components of each story type. Once they have selected the story theme of their choice to develop into an oral narrative over the following seven weeks, they are asked to explain the rationale for their choice to the other children in the group. The individual session at the end of Week 3 of the programme allows the TA to support each child to begin to the initial plan for the oral narrative on the theme of their choice.

Figure 5. 25. *Spoken Narrative Activity from Week 3, Individual Session*

Spoken narrative activity

Say “This session we are going to plan your story. Here is the story frame that was your top choice. Together we are going to fill in the boxes with bullet points of what happens in our story.”

Discussing each point create a plan of their own story. Allow and encourage the child to lead this discussion and input their own ideas.

When they have finished, say, “Like a real author, we will keep this plan with us for the next few weeks and look back at it when we are making up the parts of our story. Also like a real author we might change our plan a little bit as we go along if we have any new ideas, but we will always try to keep to the main theme we have chosen.”

Over the period of the first ten weeks of the programme, children engage in discussions and activities related to story setting, characters and key events in the stories, which scaffolds the process of creating their own stories, developing their own characters and events. These stories are refined and discussed with the group as they progress through the weeks to create their own audio story, recorded on an iPad, with feedback from their peers in the group.

Having scaffolded the process of understanding the story mountain’s four-part structure and using this to inform the children’s individual oral narrative planning and recording in the first ten weeks of the programme, greater narrative complexity is introduced in the second ten-week block of OLLI. The children are introduced to a six-point story structure in the first week of the second ten-week block of sessions: the opening, build-up,

problem, main event, resolution and ending. Choice remains an important driver of engagement and motivation as children focus on the development of a more complex six-point structure oral narrative on a story theme different to their choice for Block 1 of the programme.

For continuity and to build on the understanding of narrative structure developed in the first ten weeks of the programme, the use of the story mountain is retained in the second 10 weeks of the programme and extended, with two additional story elements introduced, the problem and the ending. The first passages in Week 11 are a three-part fictional narrative about a class trip to the aquarium. This is to provide opportunities for consolidation, to ensure minimal working memory and attentional demands at the start of the second ten weeks of the programme, and to introduce the more complex six-part narrative structure discretely over the three sessions in one week. The scripts for the session are explicit in explaining to the children how the six-point narrative structure works. This is to focus their attention on the stages in the stories encountered in this more complex feature of the programme as it progresses, stages which are discussed in the sessions and explored in the group and individual activities. Furthermore, the explicit teaching of the components of increasingly complex narrative structures is used to aid the development of children's own oral narratives as the weeks progress.

Contrary to a commonly held teacher perception, children's understanding of story structure does not simply develop by exposing them to stories. Explicit instruction is required to deepen and extend children's knowledge of story structure in order for comprehension skills to improve (Stevens et al., 2010). It is suggested (Dymock, 2002) that at school entry, children generally have an understanding of story structure at its most basic level. Children know that stories have a beginning, a middle and an end. Dymock argues that it is much less common for children to be aware of the elaborate structure that more complex stories may have, including a focus on plot, setting, theme and characters as the fictional narrative progresses. Explicit teaching of story structures in the primary years, particularly for children with comprehension difficulties support's children's comprehension of narratives of progressively greater complexity and more sophisticated narrative structure. In the OLLI programme, the explicit teaching stories of a simpler, four part narrative structure with an opening, build-up, main event and ending is repeated across different stories and applied in the children's own oral narratives before a more complex six-part story structure is introduced in the second ten weeks of the programme.

Over a six-week period, the children listen to an extended mystery story about *The Mysterious Disappearance of the Roman Plate*. Two children visit the British Museum with the father of one of the children. They notice a man behaving strangely and the following day they see a report in the

newspaper that a precious Roman artefact has been stolen from the museum. The children set out to discover what happened to the artefact and who was responsible for the theft. The sessions during this six-week period involve the TA explicitly teaching the children about the story structure and the children completing activities related to the opening, the build-up, the problem, the main event, the resolution and the ending. Engagement with these narrative structure activities during the process of listening to the story aloud seeks not only to foster the development of comprehension skills but to aid the children in planning their own six-part oral narrative which they record in stages on an iPad in the sessions. The children create story maps, character profiles and engage in peer support and feedback on their developing oral narratives. RT strategies are woven into the activities. The investigation of the effects of explicitly teaching story structure undertaken by Stevens et al. (2010) demonstrates that children can effectively learn comprehension strategies if the explicit teaching of the strategies is embedded in the process of listening to stories being read aloud.

5.11 Conclusion

The development of the OLLI programme for children in the upper primary school years with weaknesses in oral language has built upon the work of earlier oral language interventions that have been found through robust evaluations to improve children's language skills, vocabulary and

comprehension. The content of the passages and poems in the OLLI programme have also been developed to align with the content areas of the programmes of study for English in Key Stage 2 and content areas of the foundation subjects in the National Curriculum in England.

6 Research design and methodology

6.1 Introduction

This chapter will critically examine the use of randomised controlled trials (RCTs) to evaluate the effectiveness of educational interventions. The strengths and limitations of the use of randomised controlled trials in education will be discussed. The rationale for adopting a randomised controlled trial design to evaluate the efficacy of OLLI will be presented together with a description of the sampling strategy adopted and the process undertaken to recruit participants to the study. The language screening measures will be discussed, followed by an explanation of the additional measures of language skills, expressive writing skills and the arithmetic control task taken at pre-test and post-test. Issues of reliability and validity will then be presented, and the approaches taken to mitigate the impact of these issues are discussed. The ethical procedures undertaken to ensure that the study meets the guidelines for educational research (BERA, 2018). The ethical issues presented by the study are considered and an explanation of the processes undertaken to mitigate these challenges is provided (BERA, 2018) are described. The chapter will conclude with the presentation of the data analysis plan and a summary of the RCT to evaluate the effectiveness of OLLI.

6.2 Evaluating an educational intervention using a randomised controlled trial

A randomised controlled trial (RCT) involves the random allocation of participants to comparison groups, often described as the experimental group and the control group (Robson & McCartan, 2016). The experimental group receives a novel intervention, while the control group may receive a different intervention or treatment, may receive no additional treatment, may continue with 'business as usual', or may be a waitlist control who receive the intervention following the conclusion of the formal comparison. At the end of the intervention period, the performance of the two groups is compared to determine the relative effects of the conditions being compared. RCTs have informed the evaluation of medical treatments for many years leading to a drive for the evaluation of educational interventions to use an RCT design (Goldacre, 2013).

6.2.1 The RCT as the gold standard design

It is now a widely held view in the fields of health and education that the RCT is the 'gold standard' research design for evaluating the effectiveness of interventions (Kabisch et al., 2011). It is argued that 'appropriately planned and rigorously conducted randomised controlled trials (RCTs) remain the most robust research method available to find the real effect of

an intervention' (Bhide et al., 2018, p. 380). Lortie-Forgues and Inglis (2019) explain that the reason that RCTs are elevated to this high level in comparison to other evaluation methods is because they 'ensure that the groups are probabilistically identical at the outset and that any differences in outcome are therefore *caused* by the intervention', (p. 158). Random allocation ensures that differences between the average characteristics of participants in comparison groups at baseline are the result of the play of chance, rather than due to systematic differences between groups (Chalmers, 2019). Any differences then, between groups at post-test can be more reliably attributed to the intervention.

It is also argued that RCTs hold a unique place within research designs as they offer the opportunity to collect an unbiased estimate of the effect of educational programmes (Styles & Torgerson, 2018). The two group RCT, in which one group receives a treatment, and the other group does not, is considered as one of the true experimental research designs (Robson & McCartan 2016). When planning evaluations of educational interventions that may influence policy and practice, it is important to consider using an RCT design. Many funders, including the Education Endowment Foundation (EEF) hold RCTs in high regard when awarding funding, so an RCT that yields positive outcomes is necessary if funding is subsequently sought to evaluate the programme on a larger scale (Styles & Torgerson, 2018).

6.2.2 Challenges to the use of RCTs in evaluating educational interventions

However, affording RCTs privileged access to funding raises concern amongst social researchers. Robson and McCartan (2016) argue that this elite view of RCTs seriously misrepresents the nature of scientific investigations and creates a very narrow perspective on what can be accepted as appropriate evidence. A recurrent theme amongst those challenging the placing of RCTs on this pedestal is that this view has led to a sense that RCTs constitute the only method that is accepted as valid and scientifically rigorous (Ramos & Matos, 2018). Indeed, it is clear that the research community is not unanimous in the view that the RCT should always be seen as the gold standard and there is much concern about its application to the evaluation of educational interventions.

Thomas (2018) argues very strongly that the 'widely used term *gold standard of evidence* has cemented in place in discourse about education the idea that these special forms of inquiry are better than all the others, (p.391). There are risks in this elevated view of RCTs becoming so strong amongst educational researchers and funders because it can lead to the adoption of an RCT design when this may not necessarily be the most appropriate design for an evaluation and may not necessarily provide valuable information on the particular treatment ingredients that are effective, who they are effective for and the contextual factors which

influence treatment effect (Robson & McCartan, 2016). This argument fails to recognise that RCTs remain the best method for determining causality.

A synthesis of the key criticisms levelled at RCTs in education (Connolly, et al., 2018) yielded four overarching themes:

- RCTs in education are impossible on a practical basis
- RCTs do not take account of contextual and experiential factors
- The aim of RCTs is to produce a general premise of cause and effect
- RCTs are descriptive in nature and make limited contributions to theory.

Moreover, it is argued that due to the variability in the quality of the RCTs conducted, the conclusions drawn cannot always be deemed to be reliable.

The fact that a study adopts an RCT methodology does not in itself guarantee that it is of gold standard quality (Nevill, 2019). RCTs in education have these criticisms regarding variation in quality affecting the reliability of the results, yet the quality and rigour with which research is conducted affects the conclusions that can be drawn from research irrespective of the type of design.

There is a scarcity of rigorous evaluations of educational programmes and a proliferation of a range of methodological weaknesses in educational impact studies, even amongst those published in peer reviewed journals (Song & Herman, 2010). Song and Herman highlight the fact that in the first phase of the development of the What Works Clearinghouse (WWC)

just 5% of studies met the required evidence standards *without reservation* (What Works Clearinghouse, 2006) that is, were studies in which the research design was strong and the research well-executed. A further 5% met the standards *with reservation* as issues with the design or execution of the study led to findings that did not exclude the possibility that factors other than the intervention itself produced the observed outcome. Of particular concern, 89% of studies were deemed not have met the required standard at all as the findings did not include sufficient evidence that the observed outcome was caused by the intervention.

Higgins et al. (2011) draw attention to the many ways in which the causal inferences that may be made from RCTs can be affected by issues with the research design, the way in which the trial is conducted, and the data analysed. These issues can in turn lead to an overestimation or an underestimation of the effect of the intervention, but it is seldom possible to determine how much the biases have impacted on the results of a particular trial. It is possible, however, using the risk of bias tool developed by the Cochrane Collaboration for research in health to improve the quality of RCTS and to thereby produce more reliable evidence. Higgins argues that the risk of bias tool enables researchers to better understand the potential weaknesses in trial procedures which may lead to bias in results.

6.2.3 Gold standard RCTs evaluating educational interventions can be conducted rigorously

Careful planning of the research design can defend against some of the criticisms levelled at RCTs in education. It is vital at the stage of designing studies involving evaluations of the impact of educational interventions that statistical power calculations, a means of assessing 'the probability of detecting a statistically significant intervention effect' (Song & Herman, 2010, p. 358) are undertaken. Song and Herman explain that the most commonly used approach to power analysis involved calculating the minimal detectable effect size or MDES. They suggest that general practice is to set the alpha level at 0.05 on a two tailed test targeting power at 80%, thereby providing good probability of being able to detect an intervention effect without requiring an unrealistically large sample size.

Cohen (1988) described an effect size of 0.2 as small, 0.5 as medium and 0.8 as large. These are the most commonly used effect size descriptors in intervention research. In a recent review, it is argued that effects viewed as small by Cohen, actually represent large effects if considered in relation to the impact of school-based interventions (Kraft, 2020). Kraft proposes that for interventions designed to improve pupil achievement, an effect size of 0.2 or greater should be considered a large and meaningful effect. The relationship between other methodological features and effect size should also be considered when designing intervention studies and in the analysis

and interpretation of results. In an analysis of 645 studies of educational programmes meeting the required standards to be included in the Best Evidence Encyclopaedia (Cheung & Slavin, 2016) the impact of four key methodological features was noted:

- Researcher-created versus independent measures
- Sample size – small sample defined as $n = <250$; large sample $n + \geq 250$
- Research design – randomised versus quasi-experimental study
- Publication type – published study versus unpublished study.

The effect size of small studies was found to be twice that of large studies with substantially high effect sizes for quasi-experimental studies when compared with randomised studies. Researcher-created measures were also linked to higher effect sizes than independent measures.

On the basis of their analysis, (Cheung & Slavin, 2016) make important recommendations for the research design of studies evaluating educational programmes if they are to produce rigorous evidence. Where possible randomised controlled trials should be used, as random allocation to conditions largely removes bias. Furthermore, randomised trials should have large sample sizes if they are to produce convincing evidence that will be used to inform practice. Where the evaluation of educational programmes is intended to shape policy and practice, researcher-created measures should be excluded as they lead to the inflation of effect sizes. When describing the design of the present study later in this chapter, the

way in which Cheung and Slavin's recommendations have been used to inform the planning and design of the RCT to ensure quality and rigour will be demonstrated.

The exaggeration of effect sizes has been found to be a significant problem in promising trials in education with low statistical power to detect intervention effect (Sims et al., 2023). In an analysis of 22 promising RCTs, Sims and colleagues found estimated effect sizes to have been exaggerated by up to 52%. They see this as providing some explanation as to why interventions which appear to deliver improvements in initial low-powered trials do not replicate these effects when scaled up.

Whilst it is undoubtedly concerning that a substantial numbers of RCTs have used weak designs, low power and have lacked rigour in methods of analysis and a lack of transparency in reporting, the recognition of this within the research community has led to some positive benefits. It has driven support for the development of tools and guidance for researchers to improve rigour in the planning and reporting of experimental studies. The issues inherent in weak methodology are compounded by the lack of transparency in reporting (Altman et al., 2001). Altman and colleagues highlight the impact that the development of CONSORT, the Consolidated Standards for Reporting Trials, has had on improvements in the quality of the reporting of RCTs.

The most recent version of the CONSORT was published in 2010 and developed to support researchers to report RCTs in a clear, transparent way (Cuschieri, 2019) to aid consistency in the standards of reporting and in the reproducibility of trials. It is one of the measures that has been developed that provides a challenge to the arguments levelled at RCTs that criticise them for lack of transparency in how they were conducted and in how they are reported. The 25-point checklist developed by CONSORT provides an excellent guide for the robust reporting of RCTs. However, it has been shown that the use of the checklist is in itself insufficient to shape improvements in the reporting of trials. An RCT evaluating the impact of WebCONSORT, a web-based instrument incorporating elements of the CONSORT statement, in improving the quality of reporting of RCTs, did not find that using the tool led to better reporting (Hopewell et al., 2016). However, the authors acknowledge that the WebCONSORT checklist used may have included too many components leading to authors finding it too challenging to adopt. Furthermore, the checklist was not accompanied by guidance or instructions on how to address each item. Hopewell and colleagues recommend instead a reduced set of items on the checklist with detailed guidance on how each point should be addressed. The ways in which the CONSORT guidelines have informed the planning and reporting of the present study will be demonstrated later in the chapter.

It is argued that it is only possible to appraise the quality of trials if the way that RCTs are designed, conducted, and analysed is accurately explained in

published papers (Altman et al., 2001). However, this focuses on the critical appraisal in the final reporting of the trial. The pre-registration of research studies plays a crucial role in ensuring that RCTs evaluating intervention studies are rigorous in design and implementation and then reported in a transparent way. By submitting the research plan and the analysis protocol to a registry such as the International Standard Randomised Trial Number registry (ISRCTN) which is publicly available, in advance of commencing the study, the quality of the study and its findings will hold up to more intense scrutiny.

Pre-registration has been important for some time in healthcare research with many medical journals making it clear that they will only consider publishing RCTs if the trial protocols were pre-registered (Li et al., 2019). Increasing rigour and transparency in RCTs in education is now being seen with an increasing number of educational trials adopting the pre-registration protocol. Attention is drawn by Li et al. to the rationale behind trial pre-registration, 'The primary motivation for registering one's protocol...is to confirm adherence to the protocol throughout the conduct of the trial and analysis of data. Transparency of research protocol elevated research by preserving the integrity of the trial. The reliability, usually reported in terms of statistical significance, depends on the hypothesis established a priori, before the observations take place,' (p. 131).

Li et al. (2019) argue that although educational trials would benefit from adopting the same pre-registration measures as those required for medical trials and for the publication of these trials in many journals, research in education and the author guidelines of educational journals have not yet reached this degree of parity with medical research. They note four key limitations currently to the pre-registration of educational trials:

- A lack of awareness amongst educational researchers about the pre-registration of trials and the benefits this offers couple with limited training in research methods.
- Systematic differences between educational trials, often with small samples and the type of RCTs seen in medical research.
- Restrictions imposed at the institutional level to support with the bureaucracy of pre-registration systems and limited or total absence of funding available.
- Clinical websites have not been designed to support the registration of trials in education.

In the present trial, the opportunity to work with highly experienced and internationally respected leaders of RCTs evaluating the effectiveness of educational interventions, enabled the researcher to address and overcome the limitations identified by Li et al. (2019). Training in research methods was undertaken as part of the DPhil probationary research student programme and detailed guidance and support with navigating the

bureaucratic demands of pre-registering the trial and providing research assistant funding was provided by the supervisor. The large sample recruited to the RCT, and the protocol adhered to in pre-registering with the ISRCTN registry (<https://www.isrctn.com/ISRCTN78621766>) ensured that the trial was conducted rigorously in line with classic medical RCTs.

6.3 Rationale for using an RCT design to evaluate the Oral Language for Literacy Intervention (OLLI)

The aims of the present study, as outlined in Chapter 3, were to evaluate the effectiveness of OLLI, a systematic, structured oral language intervention, in improving the language skills and written expression of children aged 8-10 years with language comprehension difficulties. To select the most appropriate design for the evaluation, consideration was given to whether a feasibility study or pilot study was required or whether the intervention, proposed sample size and confidence in being able to recruit the sample size required to detect intervention effect was sufficient to press forward with a full randomised controlled trial.

Feasibility and pilot studies have an important function in the planning of a full RCT (Abbott, 2014). Abbott argues that 'the purpose of a feasibility study is to assess whether or not it will be feasible to conduct a RCT of a particular intervention in a particular setting,' (p. 557). Pilot studies, on the other hand, 'typically replicate what the researchers hope will be the final

design of the full RCT and serve the role of a “dress rehearsal” (p. 557). In considering these potential study design choices alongside the limitations of RCTs discussed earlier in this chapter, the researcher concluded that there was a powerful rationale for aspiring to the gold standard RCT, without the need to conduct feasibility or pilot studies in advance. The large-scale RCTs evaluating language interventions over the last 15 years, (Bowyer-Crane et al., 2008; Clarke et al, 2010; Fricke et al, 2013; West et al., 2021) have indeed acted as a ‘dress rehearsal’, providing both feasibility and pilot evidence for an RCT to evaluate OLLI due to the similarity in design, variables, assessment instruments, outcome measures and participant populations. It follows therefore that a full, pre-registered RCT, informed by the aforementioned language intervention trials that follows CONSORT guidelines in transparent reporting is the most appropriate, research design to deliver robust findings concerning OLLI’s effectiveness in improving children’s language and expressive writing skills.

For a researcher new to conducting a large scale RCT to evaluate the effectiveness of an educational intervention, the CONSORT checklist (CONSORT, 2010) has not only informed the robust reporting of the trial but indeed provided excellent guidance and support at the design and planning stage. Together with a careful analysis of similar RCTs to evaluate language interventions (Clarke et al., 2010; Fricke et al., 2013; West et al., 2021) the checklist provided the researcher with confidence that the trial was being conducted to a high standard, with transparency and rigour. It

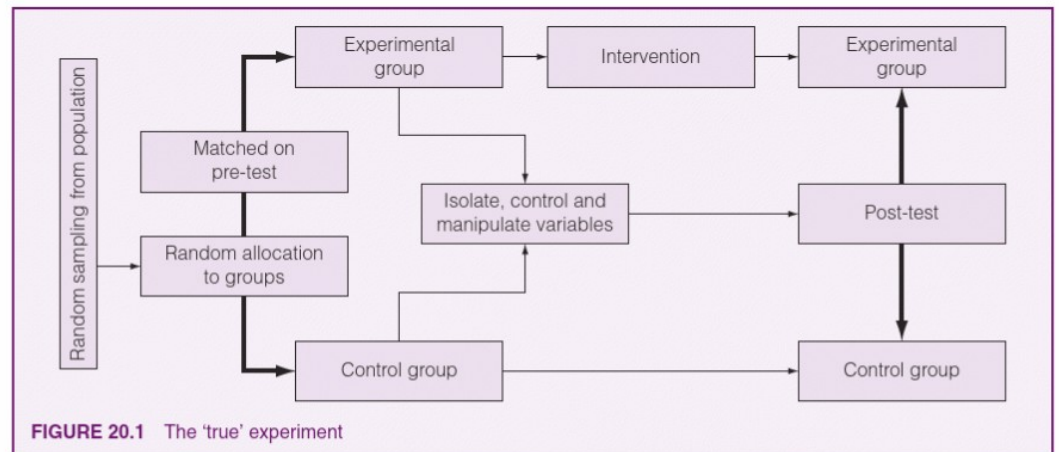
ensured that each step in the design and analysis protocol was followed facilitating publication on completion and reproducibility at scale up if successful. Furthermore, the pre-registration process supported in ensuring a clear plan for how the language and writing variables would be measured at pre-test and post-test and a clear plan for the analysis of data on completion of the trial.

Robust trial planning of a true experiment was also informed by the key elements of an RCT as identified by Cohen et al., (2018) as outlined in Figure 6.1 below:

- Participants randomly sampled from a population
- Participants randomly allocated to experimental or control groups
- Pre-testing of experimental and control groups to ensure that no statistically significant differences exist between both groups
- Key variables are identified and isolated
- Other variables are excluded
- Experimental group only receives the intervention whilst maintaining all other variables constant for both groups
- Ensuring that there is no contamination from treatment to control group
- Post-test outcome measures taken experimental and control groups and to examine difference between scores at pre-test and post-test for experimental and control groups.

- Comparison of intervention and control group to determine intervention effect.

Figure 6. 1. *The true experiment (Cohen, Manion & Morrison, 2018)*



6.3.1 Evaluating the effectiveness of OLLI using an RCT design

It was important to ensure that the sample size for the RCT evaluating the effectiveness of OLLI in improving the language and written skills of children with language comprehension difficulties would be sufficient to detect an intervention effect and that it would be a representative sample of schools and classrooms so that the outcomes could be generalised to schools and classrooms across England. A statistical power calculation was conducted in Stata 18.0 (Stata Corp, College Station, Texas, USA) to determine how many Year 4 classrooms would be required to determine the MDES of at least 0.2. The calculation demonstrated that a sample of

180 children would provide approximately 80% power to detect an intervention effect of $d = 0.25$, assuming a correlation of 0.8 between the pretest (covariate) and the outcome.

Based then on this statistical power calculation, the study aimed to recruit a sample of 180 children in 30 Year 4 classrooms in mainstream primary schools. A convenience sampling strategy was used to recruit schools to participate in the study. A convenience sample refers to a sample taken from a source that can be accessed conveniently by the researcher. This strategy was adopted as the researcher has an extensive network of primary school Special Educational Needs Coordinators (SENCOs) and Local Authority Special Educational Needs and Disability (SEND) Inclusion Teams in London and the Southeast. Drawing on these contacts would offer the maximum likelihood of reaching the recruitment target. An expression of interest form in the study was circulated to students on the National Award in SEN Coordination Postgraduate Certificate programme, and to SENCO and LA inclusion leads. The high level of interest that the circulation of the forms generated in both participating in a research project and in interventions to support children with language weaknesses indicated that it would be fruitful to target school contacts to participate in the RCT, particularly due to the large number of classrooms required.

RCTs are viewed as particularly important because they allow for unbiased estimates of the effects of an intervention. Ideally, in order to generalise

the conclusions from a study to the population as a whole, participants would be selected using probability sampling which involves random selection of participants from the population and therefore allows findings from the sample to be generalised to the wider population. Convenience sampling, on the other hand, does not meet this elevated standard and has even been defined as 'cheap and dirty...you do not know whether or not findings are representative' (Robson & McCartan, 2018 p. 275). If the goal of research is to generate findings that can be generalised from the sample to the general population, then it is only possible if it can be said that our sample is truly representative of the population. Furthermore, it is unlikely that the sample will be representative unless it is taken from randomly from the population (Andrade, 2021).

With a focus on ensuring generalisability researchers considering the use of convenience sampling to maximise recruitment are faced with some concerns. Although good internal validity is still possible as long as the study is methodologically sound (Andrade, 2021), external validity is compromised due to the issues with generalisability outlined earlier, which in turn leads to frequent bias in the estimated effect sizes based on convenience samples (Jager et al., 2017). However, in spite of the widely acknowledged limitations to convenience sampling, it is still commonly used in developmental research. Jager and colleagues acknowledge that if the convenience sample is of a homogenous population, there will be greater validity in the estimated effects than that offered by conventional

convenience sampling. Later in the chapter, the homogeneity of the pupil participant sample, children with identified language weaknesses will be demonstrated. The attempts to obtain a representative sample of participating schools from which the pupil population is drawn will also be described.

6.3.2 Participants

Participants in this study were all children aged 8 - 9 years who were at the end Year 3 or the beginning of Year 4 at the time of recruitment to the study. All attended mainstream English primary schools and were in Year 4 when the intervention delivery began. Participants were recruited by the author sharing information about the study with NASENCO students at University College London, during online webinars (which replaced face-to-face teaching during the pandemic) and by contacting schools and local authorities with whom previous advisory and consultancy work had been undertaken. The author of the present study had previously worked as a local authority advisor and specialist teacher and had managed the specialist teaching services for speech and language, autism, hearing impairment and visual impairment. As a result of the author of this study's current role leading the NASENCO course and earlier local authority positions, there were opportunities to recruit via an extensive network of educational contacts.

Due to a high level of interest in the study from SENCO and LA contacts, double the target number of Year 4 classes, 62 classes in total were recruited to the trial between June and December 2021. The schools were located in London, the Southeast, Hertfordshire, Cambridgeshire, and Buckinghamshire. Four were three-form entry primary schools, sixteen were two-form entry and eighteen were one-form entry schools.

6.3.3 School characteristics

Generalisation to the national population of children in the later primary years is also dependent on the extent to which the study sample is representative of the national population. National data sets were examined, and the characteristics of the study sample were compared to national data on Income Deprivation Affecting Children Index (IDACI), Free School Meal (FSM) eligibility and the number of pupils with English as an Additional Language (EAL).

The IDACI provides a measure of the proportion of all children aged between 0 and 15 years who are living in families who meet the criteria to be described as income deprived and includes those working but on low income and people who are out-of-work. FSM eligibility is used as an indicator of Socio-Economic Status and poverty.

Most recent available data show the mean national IDACI score as 0.257.

The mean IDACI score for schools participating in the trial is 0.20 (SD 0.09).

The mean number of pupils in England who are eligible for FSM for 2021/22 was 22.5%. For the schools in the present study the mean number of pupils eligible for FSM for 2021/22 was 30.64% (SD 13.09). Data from the DfE shows that in 2021/22 the mean number of pupils registered as EAL was 21.2%. Schools involved in the OLLI trial had 42.20% (SD 21.28) of pupils registered as EAL in 2021/22.

The comparison of the characteristics of schools in the present study with national data indicates that they were relatively closely matched in relation to income deprivation. However, numbers of EAL pupils and children who were eligible for FSM were significantly higher for participating schools compared with schools nationally.

6.4 Data Collection

6.4.1 Pre-intervention testing

Prior to the baseline screening of all pupils in participating classes, four classes in two schools, one three-form entry school and one single form entry school decided not to participate in the trial. Both schools withdrew due to teaching assistant capacity issues. Therefore, baseline language screening was conducted in 58 classrooms in 36 schools.

6.4.2 Language Screening

Language screening of all children in participating classes whose parents had not opted them out of the first level of the study was conducted using the LanguageScreen (LS) app. LS consists of four short sub-tests assessing a child's core oral language abilities. An overview of the individual subtests is provided in Table 6.1 below.

Table 6. 1. *LanguageScreen Subtests and Tasks*

Receptive Vocabulary	The child hears a word and must point to the picture that corresponds to the target word.
Expressive Vocabulary	The child sees a picture and must provide the correct name of the item shown.
Sentence Repetition	The child hears a spoken sentence and must repeat the sentence correctly.
Listening Comprehension	The child listens to three short stories. The researcher then asks questions eliciting explicit and implicit knowledge about the story that the child must answer.

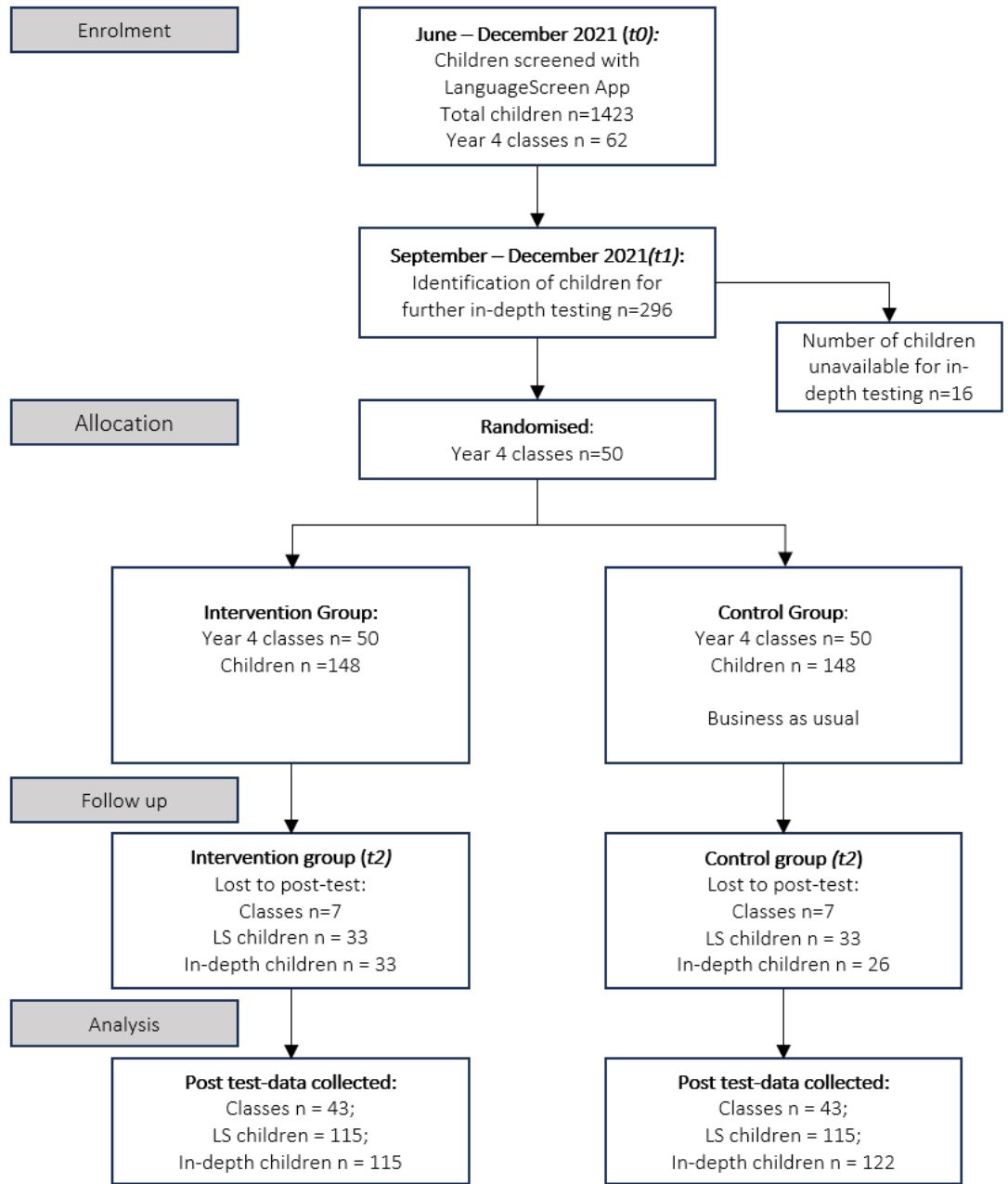
A score is obtained for each of these four subtests which are then combined to provide an LS total score reflecting the child's overall language ability. The composite scores enable children in each Year 4 class to be ranked in relation to their composite scores, facilitating the identification of the six children in each class with the lowest language skills who were invited to participate in the trial. The Language Screen assessments have been extensively used in the national NELI trial (West et al., 2021) and

piloted by the author of this study. The LS assessment takes approximately 10 - 15 minutes per child. LS assessments were administered by a teacher or teaching assistant in school. On completion of the tests, the results were automatically uploaded to the secure OxEd server. Reports were then sent securely to the author of this study.

The screening assessment was administered by teachers and teaching assistants between June and December 2021. 1423 children were screened, of whom were 692 boys and 731 were girls. 565 children, 40% of the participants were registered in school as having English as an additional language (EAL). The screening results were used to identify the six children in each participating class with the weakest language skills as measured by the total LS score. These children were eligible to participate in the intervention subject to parental consent. Screening was used instead of teacher selection to maximise the objectivity of the selection. The lowest six children were selected as this would allow the intervention and waiting list control groups to each have 3 children in them, maximising the opportunities for peer learning and language learning opportunities.

Following the screening, additional schools were lost to the trial. 8 classes in 5 schools, 3 two-form entry schools and 2 one-form entry schools withdrew. All reported staffing capacity issues directly related to Covid-19 staff absences which led to re-deployment of TAs to provide cover. The flow of participants through the trial can be seen in Figure 6.2 below.

Figure 6. 2. *The flow of participants through the trial.*



6.4.3 Randomisation

In January 2022, the 296 children with the lowest LS total scores who had parental consent to participate in the trial were randomised individually, stratified by class to the intervention or waiting list control arm of the trial. Randomising individual children and stratifying by class was undertaken to minimise teacher effect. Randomisation was undertaken in Stata. The process of randomly allocating participants to treatment or control groups is the crucial factor in giving RCTs their strength. The random assignment ensures that all participants have an equal chance of being allocated to each arm of the trial and that both groups are as equally matched as possible (Stolberg et al., 2004) Stolberg et al. argue that rigorously conducted randomisation is the only design that enables researchers to limit ‘the risk of imbalance in known and unknown factors that could influence the clinical course of the participants.’ (p. 1540). Table 6.2 below presents the randomisation data and demonstrates that the intervention and control groups were well-matched on total LS raw score, age, gender and EAL.

Table 6. 2. *Characteristics of intervention and control groups*

	Intervention	Control
Male Pupils	83	84
Female Pupils	65	64
EAL Pupils	72	83
Non-EAL Pupils	76	65
Total Pupils	148	148
LS Raw Score - Mean	54.46	54.22
(SD)	-9.14	-8.22
Age (months) - Mean	100.23	99.7
(SD)	-3.8	-4.12

6.4.4 In-depth assessment of language skills

In the remaining 50 Year 4 classrooms in 33 primary schools, the six children with the weakest language skills (n = 296) identified by their LS total raw score were further tested on in-depth tests measuring language skills. The battery of standardised language tests used are described below in Table 6.3.

Table 6. 3. In-depth Language Assessments

Test Name	Task
CELF-4 Recalling Sentences	A sentence is read to the child who is required to repeat the sentence. Sentences increase in length and complexity as the test progresses.
CELF-4 Formulated Sentences	The child is shown a picture and is told a target word. The child is required to make a sentence about the picture using the target word.
CELF-4 Understanding Spoken Paragraphs	The child listens to a paragraph before being asked to respond orally to a series of literal and inferential questions based on the paragraph. There are three short paragraphs.
Renfrew Action Picture Test	Child is presented with a series of simple pictures and asked to describe what is happening in the picture. The responses are scored is on the information provided and the grammatical structures used.

Administration manuals for the CELF-4 (Semel, Wiig, & Secord, 2006), and Renfrew Action Picture Test (Renfrew, 2020) combined with test piloting indicate that the in-depth tests would take 50 to 60 minutes per child. The tests were administered by research assistants who had undergone face-to-face training with the author of this study in the administration and scoring of the tests. In addition to the standardised tests, the children's written expression was assessed using a 15-minute writing task. The children's written expression and arithmetic skills were also assessed.

Pupils were also tested on their ability to define 12 randomly selected bespoke vocabulary items taught during the intervention, six from the first ten-week block and six from the second ten-week block. To assess far

transfer of vocabulary knowledge, pupils were also asked to define six additional untaught vocabulary items, words which appear in the oral narratives, but which were not directly taught. Again, these words were selected at random, three from narratives in the first block of ten weeks and three from the second.

6.4.5 Assessment of expressive writing skills

A further aim of this study was to evaluate whether targeting oral language skills not only improves language skills but also written expression. To assess this, each pupil completed a 15-minute writing task from the Writing Assessment Measure (WAM) (Dunsmuir et al., 2015) . The WAM was developed to provide a measure of written expression skills that children across the ability range are expected to achieve in upper primary school. The evaluation of the instrument conducted by Dunsmuir et al. demonstrated that the WAM has good reliability and validity and that the measure correlates well with the Weschler Written Expressive Language sub-test.

The WAM utilises an analytic scoring method. Children are required to write for 15 minutes using a prompt. The prompt used in the present study required children to imagine that they could go anywhere they wanted on a school trip. They were asked to write about where they would go and what they would do. The test was administered by a teacher or teaching assistant in the school as a group task with all six children together. The

prompt was given verbally by the administrator and written on the test sheet. The children were asked to stop writing after 15 minutes.

The WAM assesses children's written expression across the following seven criteria: handwriting; spelling; punctuation; sentence structure and grammar; vocabulary; organisation and overall structure; and ideas. These criteria were reduced to four areas for the present study as handwriting, spelling and punctuation were not related to the oral expressive skills taught in the intervention that it was hypothesised would improve written expression. Furthermore, handwriting and spelling were not deemed to directly measure the quality of the actual content of the writing.

Using the WAM scoring system, each piece of writing was awarded a score of 0, 1, 2, 3 or 4 for sentence structure and grammar; vocabulary; organisation and overall structure; and ideas. The total number of words written by the child was also calculated to obtain a measure of writing fluency. The descriptors for the highest and lowest scores for each of the four criteria from the WAM used to score the writing are presented in Table 6.4 below. (See Appendix A for the full rubric used to score the writing tasks).

Table 6. 4. Maximum and minimum scores available for each of the WAM criteria

Score of 4	Score of 1
Sentence structure and grammar	
Secures control of complex sentences. Understands how clauses can be manipulated for effect. Able to use conditional and passive voice e.g. 'having watched him eat a dog biscuit, she felt sick'.	Writes simple phrases which are not connected.
Vocabulary	
Demonstrates use of well-chosen vivid and powerful vocabulary to create effect e.g. verbs, adjectives, adverbs.	Limited vocabulary which is inappropriate to content.
Organisation and overall structure	
Paragraphs are well organised, based on themes and provides a cohesive text for the reader e.g. paragraphs, subheadings, locally organised events.	Communicates meaning but may 'flit' from idea to idea and any themes that are expanded are done so in one sentence.
Ideas	
Ideas are creative and interesting in a way that engages the reader. Uses a range of strategies and techniques such as asides, comment, observation, anticipation, suspense, and tension.	Produces short sections of ideas which may be repetitive and limited in nature.

Each piece of writing was scored by the author of this study. Two academics, blind to group allocation then rated 10% of the sample to obtain a measure of inter-rater reliability. One of these raters had a background as a primary teacher with extensive experience as a Key Stage 2 Standard Attainment Tasks (SATs) marker of Year 6 writing tests. The other rater has a background in writing research. Each rater scored the writing samples independently and then shared scores with the author of the study. Any discrepancies between scores were discussed at a moderation meeting to which all raters brought detailed notes on the

rationale for the scores awarded, and a final decision was made on the score to award each piece of writing.

6.4.6 Selection of language and writing test instruments

Ohir et al. (2024) argue that assessments are indispensable instruments for informing educational decisions and therefore it is crucial that their psychometric properties, that is, their validity and reliability, must be strong. The validity of the assessment tool relates to the extent to which the test accurately measures the construct it sets out to measure.

Reliability relates to the extent to which the test can produce results consistently over time (Ohir et al., 2024). The test instruments selected for pre-and post-test in this RCT have been shown to have high levels of validity and reliability and are widely used in assessments of children's language by speech and language therapist and teachers.

LanguageScreen has been shown to be highly reliable in detecting children's oral language difficulties and in providing accurate measurements in changes in children's language skills over time (Hulme et al., 2024).

The RAPT, normed on a UK population was selected as part of the battery of language assessments as it provides a reliable measure of assessing children's vocabulary, expressive language and grammatical structures, areas of language targeted in the OLLI programme. It has been found to

have a strong correlation with similar language assessment instruments (Jordan & Coulter, 2016).

The CELF 4 (UK) (Semel, Wiig & Secord, 2006) manual states that the stability of scores across test and retest was used to determine the reliability of the test instruments. The data collected to determine reliability showed that the scores were stable when the test was repeated, and that scores were consistent across examiners. The manual also provides extensive detail demonstrating the extent to which the language subtests measures the core aspects of language it is designed to assess. These language tests were therefore selected as they directly measure the core language skills targeted in the OLLI programme.

The areas of expressive writing that have been shown to be directly affected by weak language skills are grammar and sentence structure, idea generation and organisation (Dockrell et al., 2012). Therefore, the Writing Assessment Measure (WAM) (Dunsmuir et al., 2015) was selected as an appropriate assessment instrument for expressive writing as it directly measures these core writing skills. The measure correlates well with the expressive writing subtest in the Weschler Objective Reading Dimensions (WOLD). Test-retest reliability was shown to be good, with strong inter-rater reliability.

6.4.7 Assessment of arithmetic skills: the control task

In order to evaluate whether any post-intervention gains are due to the intervention rather than a general improvement in pupils' performance, each child completed an arithmetic control task from the Test of Basic Arithmetic and Numeracy (TOBANS; Brigstocke et al., 2016). The TOBANS is a standardised battery of arithmetic and basic number processing tests designed to assess the accuracy and fluency. The children were required to undertake the one-minute addition test and the one-minute subtraction test.

These tests were administered by a teacher or teaching assistant in the school as a group task with all six children together. Instructions were given verbally and printed on the test paper. Children were required to complete a practice test of three simple addition sums before the one-minute addition test to ensure that they understood what was required. They were then told to start the one-minute addition test and to complete as many sums as they could within one minute. The test was timed by the administrator and children were required to put their pencils down once they were told that one minute had passed. This process was repeated for the subtraction test. Tests were then scored with a score of one being awarded for each correct answer. A total score for addition skills was calculated and a total score for subtraction skills was also calculated.

6.4.8 School training

Once all screening was completed and the start date for the intervention was scheduled for January 2022, schools were required to attend two half days of online training led by the author of the present study supported by two master's students. It was compulsory for the TAs deployed to deliver the intervention and at least one member of the Senior Leadership Team (SLT) from each school to attend both online training sessions. A senior leader from each school was required to be present to ensure that the schools had a sound understanding of the programme, the principles underlying the intervention and the importance of fidelity to the programme.

The first half-day's training focused on oral language development, the impact of oral language on literacy development and the research evidence for effective oral language interventions. The focus shifted on the second day to the intervention itself, the programme structure, the general teaching principles, and an overview of the 20-week programme. Sample resources from the programme were shared with schools. Participants had an opportunity to ask questions and to request additional support when preparing to commence the programme.

To ensure that participants felt comfortable in the online forum, the training sessions were run on two separate occasions so that neither group was too large. A final catch-up session was held for six schools who were

unable to attend sessions on the scheduled days. It was vital that all schools attended the training before the intervention commenced. TAs and members of SLT in each school were provided with electronic copies of the training materials and an additional copy of the training presentation was included in the intervention manuals that were sent to schools. Research has demonstrated that language interventions can be successfully delivered in educational settings but that this is dependent on appropriate training and intervention materials being provided (West et al., 2021).

A crucial part of the training was to focus on the risk of contamination from the intervention groups to the control groups nested within classrooms. This was a particular risk as some of the TAs delivering the intervention were also deployed as general support TAs in the classrooms in which the intervention and waitlist control group were situated. The risks and the impact of any contamination on the outcomes of the research was emphasised at the point of training but also discussed during ongoing support meetings, school visits and observations.

Another core feature of the training that it was vital was understood by both TAs and senior leaders related to programme fidelity. With COVID-19 still presenting challenges related to staff illness and TA redeployment to cover absences, the author of the present study needed to stress the importance of following the manual when delivering the intervention, but also that intervention delivery must follow the structure and dosage as

outlined in the manual. Support from the SLT to release the TAs from other duties and to be timetabled to deliver the intervention for 30 minutes twice a week to the intervention group and for 30 minutes each week to each intervention group child individually was fundamental to treatment fidelity.

Ongoing support for TAs from both SLT and the author of this study throughout the delivery period was also essential. Evidence from a number of language interventions has demonstrated that ‘successful interventions...depend upon the knowledge and experience of the persons delivering them, and it follows that training needs to be thorough and rigorous with ongoing support, (Snowling et al., 2022,p. 357). Snowling and colleagues also emphasize the need for early, frequent, and comprehensive communication with practitioners involved in delivering language interventions. This is central to maintaining engagement throughout the delivery phase of the intervention and to intervening early with appropriate guidance and support.

Schools were invited to request visits, attend online meetings, or telephone conversations to share any challenges in implementing the intervention or any issues with understanding how to deliver the programme. Visits or meetings were arranged promptly to provide support and to ensure engagement with the programme. Schools were also invited to request a visit from the author of this study to model the

delivery of an intervention session or to request observations and to receive feedback.

6.4.9 Post-intervention Testing

The language skills of all participating children, intervention, and control groups, were assessed using LanguageScreen (LS) at post-test in June and July 2022. These tests were administered by teachers or teaching assistants who were not all blind to group allocation as they worked with the classes involved in the trial. Language skills were further tested by trained research assistants, blind to group allocation, using the same battery of in-depth language assessments as used at pre-test: CELF-4 Recalling Sentences, Formulating Sentences and Understanding Spoken Paragraphs, and the Renfrew Action Picture Test. Vocabulary knowledge was measured using the same test of bespoke taught and untaught vocabulary as administered at pre-test. The Writing Assessment Measure (WAM) expressive writing task was administered again by teachers or teaching assistants as a group task with all six participating children in each class.

6.5 The OLLI Programme

The Oral Language for Literacy (OLLI) Programme is a targeted 20-week manualised intervention for children aged 8 to 10 years. The programme is designed to improve children's oral and written expression and enrich vocabulary knowledge and its application to spoken and written language.

The programme promotes active listening and develops children's understanding of figurative language through jokes and idioms. Children are encouraged to develop metacognitive strategies to support comprehension of spoken language. Understanding of language and oral narrative is also supported by the teaching and modelling of the use of reciprocal teaching (Palincsar & Brown, 1984).

The scripted intervention is delivered by a trained teaching assistants. There are three 30-minute sessions per week; two delivered to groups of three children and one individual session delivered to each child. Each daily oral narrative introduces a new Tier 2 vocabulary item, the 'word of the day.' Integrated into all oral passages are a range of other Tier 2 words which are not explicitly taught.

6.5.1 OLLI Teaching Assistant and Senior Leader Support

All teaching assistants selected by their schools to deliver the OLLI programme were required to attend live online training sessions alongside a senior leader from their school. The attendance of the senior leader was required to ensure that schools were provided with a clear overview of the programme and an understanding of the staff time required for effective delivery. Training stressed the importance of delivering the programme with fidelity and avoiding contamination from intervention to control children.

The training was delivered over 2 half-day sessions, beginning with an introduction to children's oral language development. The training then focused on the theoretical background to the programme, followed detailed instruction covering the programme materials, session structure, activities, and resources. Support and guidance were provided for school staff throughout programme delivery. Schools could access support through online meetings or telephone calls or could request a visit from the team to discuss any issues with programme or could request a modelled session or an observation with feedback from the research team. Schools were contacted every 3-4 weeks throughout the intervention delivery period to check on progress and to offer support as needed.

6.6 Ethical considerations

6.6.1 Participation and consent

The research was designed to adhere fully to the British Educational Research Association (BERA) guidelines for research in educational contexts (BERA, 2018). Ethical approval was granted by the University of Oxford Research Ethics Committee. A copy of the information letters and consent forms can be found in Appendix B.

Headteachers of participating schools were required to provide full informed opt-in consent for their staff and pupils to participate in the study. It was essential that head teachers were aware of the time

commitment in relation to deployment of teaching assistants to the programme for the duration of intervention delivery to the intervention group and the waiting control group. The 2.5 hours per week required for intervention delivery for each Year 4 class needed to be clearly understood and planned in relation to current support staff resourcing before the consent was provided by the head teacher. In addition to the intervention delivery, the headteacher was required to allocate a teaching assistant or class teacher to undertake the pre-intervention and post-intervention pupil language screening, using the LanguageScreen app developed by an Oxford University spin-off company OxEd and Assessment.

The study used two levels of parental consent. Once headteacher consent was obtained, full, informed opt-out consent was offered to parents of all pupils in the year 4 classes in each participating school, giving the opportunity for pupils to be withdrawn from the whole class language screening. All children whose parents did not withdraw them from the initial language screening undertook the 10 - 15 language assessment with a trained teaching assistant. This screening was used to identify the six pupils in each Year 4 class with the weakest language skills. Full informed consent was then obtained from the parents of these six children giving permission for the pupils to undertake an additional battery of language assessment tasks, writing and maths tasks and for them to participate in the trial in which the intervention group received the 20-week oral language intervention starting in January 2022 with the waiting list control

group offered the intervention once the post-tests had been completed with intervention and control group children in June/July 2022.

6.6.2 Addressing ethical issues

The BERA guidelines highlight the issues that may present themselves in relation to consent to participate in RCTs which include a number of settings, 'Institutional leaders may agree to take part, acting as gatekeepers on behalf of members (such as teachers and students in schools)' (BERA, 2018, p. 12). Therefore, it is vital that all of the members of the institutions invited to take part are fully informed about the study with the researcher providing both information and support regarding what participation will involve, the potential benefits of the research and any possible risks arising from participation. In line with this, the first step in the present study was obtaining informed written consent from the headteacher on behalf of the schools involved and then obtaining informed opt-out consent from parents of children in classes involved in the initial language screening.

Following the language screening to identify the six children in each participating class with the lowest composite LanguageScreen scores, informed written consent was obtained from parents for the children to undertake further language assessment and to participate in the 20-week intervention as part of the intervention or waiting list control group.

Particular care must be taken when involving children in research. The BERA (2018) guidelines emphasise that the primary focus should be

ensuring the best interest of the child. Parental consent must always be sought but where children are of sufficient age and maturity to express their views, they should be permitted to do so. Therefore, child-friendly, age-appropriate information sheets for children were provided and research assistants further explained the study with verbal consent obtained from children before commencing individual in-depth testing. Schools, parents, and children were advised of the right to withdraw from the study without any consequence.

A further ethical issue was presented in relation to the recruitment of schools to the present study through the convenience sample method described earlier in the chapter. A number of classes were recruited to the study through SENCO students that the researcher was teaching on the National Award in Special Educational Needs Coordination (NASENCO) postgraduate certificate at UCL. This raised possible concerns related to the power relationships, highlighted in BERA (2018) involving the researcher also being the students' course leader and module tutor. It is vital that researchers are mindful of the potential imbalances in power between researcher and participants and that appropriate measures are adopted to address any ethical concerns that arise from this (Cohen et al., 2018). Account was taken of the fact that students may have felt compelled to take part to please the researcher who they may not only have seen as an authority figure but may also have felt that their performance in assessments on the course may be impacted positively by their school

taking part or negatively by their school choosing not to participate in the study. This issue was addressed by ensuring that SENCOS shared all information sheets related to the study and the commitment involved in participating with their headteachers and that the consent to participate in the study had to come in writing directly from the headteacher, not from the SENCO contact. Furthermore, all SENCO students were informed from the start of the NASENCO course that all marking of assignments was anonymous and that contextual information in assignments must not contain any information that would identify their school in line with the ethical guidelines for educational research (BERA, 2018).

6.7 Issues of validity and reliability

6.7.1 Validity

A challenge facing those recruiting to RCTs in schools 'is to apply rigorous design principles to maintain internal and external validity while not disrupting the daily operations of schools' (Petosa & Smith, 2018, p.2).

Although Petosa and Smith focus on RCTs in schools from the perspective of school nurses, the same challenge applies to recruitment to educational interventions by educational researchers. They argue that it is important to consider the relative importance of the research within the broader context of the needs of the school at the time that the research project will be conducted. Consideration should be given to the extent to which the focus of the study is aligned with the school's mission, curriculum

objectives and broader local authority initiatives. Furthermore, at the recruitment stage the explain how it is crucial to be clear with schools about how the logistical aspects of the study will impact on class time, pupils' time out of class and the disruption that intervention delivery may have on daily activities and staff deployment.

The broader needs of schools in the present study were considered in relation to the timing of the recruitment phase. It was necessary to delay the planned recruitment phase due to the instability and disruption to pupil and staff attendance and daily activities as schools emerged from the COVID-19 crisis. Indeed, once the situation became more stable in schools, the focus for many schools was to improve children's oracy skills after the prolonged school closure, thereby aligning the study's focus with the priority development area of many primary schools. This increased schools' commitment to participation in the present study. The commitment to a research project in educational settings is strengthened when staff perceive that the benefits of participating are greater than the potential broader costs to the school and when they have considered the factors within their individual settings, such as teacher timetables and classroom organisation, that may impact their full participation in the research (Petosa & Smith, 2018).

The risk of schools being able to fully commit over the duration of the screening, in-depth testing and intervention delivery period was perceived

to be relatively high at the point of recruitment to the study due to the ongoing COVID related staffing pressures.

As a result, it was vital to ensure that at the point of recruitment, schools fully understood the commitment they were undertaking by participating in the study. In addition to the information sheets sent to headteachers who had expressed an interest in participating, phone calls or online meetings were offered to schools. Sixteen of the thirty-eight schools who consented to participate in the project, representing thirty-one of the participating Year 4 classes, took up the offer of a phone or online conversation in which detailed information was provided together with an opportunity for school staff to ask questions. All thirty-one of these classes went on to be screened, with the six children with the lowest LanguageScreen scores undergoing in-depth testing, before being randomised to intervention and waiting list control conditions in January 2022. After randomisation, one of these schools which had two participating classes were unable to proceed with intervention delivery due to Covid-related staffing issues. Their data are included in the analyses on an intention to treat basis.

6.7.2 Reliability

A fundamental principle of RCTs is that the experimental and control group are kept separate to ensure that there is no contamination from the intervention to the treatment groups. With participants nested within

classrooms in the present study, this presented a challenge as a teaching assistant who is delivering the intervention to the treatment group in one class may also be supporting control group children during literacy lessons. It is argued that when participants in an RCT are nested within groups, in this case Year 4 classrooms, 'their outcomes may be correlated due to shared environmental influences' (Van Breukelen, 2013) or instructional methods, support strategies used in the intervention and then employed by the TA in classroom support that may involve control group children. For this reason, a cluster randomised controlled trial may be seen as preferable to a traditional randomised controlled trial as it limits the risk of contamination and 'spill over within schools from treatment classrooms to control classrooms,' (Bloom et al., 2007, p. 30).

The fact that the pupils from both arms of the trial are nested within the same classroom creates a risk of contamination as 'interaction between individuals randomly assigned to different treatment conditions causes some individuals to receive features of a treatment to which they were not assigned,' (Rhoads, 2011, p. 77). Rhoads argues that although adopting a cluster RCT design would help to overcome these risks, it is widely acknowledged that in cluster randomised controlled trials the standard error of estimates of intervention effects are larger than those in designs in which randomisation occurs within clusters. The standard error in cluster randomised designs is mainly dependent on the number of clusters, not individuals, and numbers of clusters are often small. Rhoads highlights the

challenge faced by researchers in selecting the most appropriate design, the cluster randomised design to minimise contamination risks whilst potentially reducing statistical efficiency, or traditional randomised design which carries with it the contamination risk.

Mindful of this, the present study took account of the arguments presented by Rhoads (2011) in designing the research. In selecting a traditional RCT design, measures were adopted to minimise the contamination risk from intervention to control group children nested within the same classrooms. Firstly, the compulsory training attended by all school staff involved in the trial explained the risks involved in using any of the intervention materials or taught strategies outside of the intervention groups. All schools received either face-to-face or online consultations and phone calls during the period of intervention delivery. During these visits and meetings, schools were reminded of the contamination risk and confirmed that only the intervention programme, resources and teaching approaches were not being used with any other children. Senior leaders who attended the training were also asked to monitor intervention delivery and to remind TAs of the requirement to restrict the use of the intervention and all materials to children in the intervention arm of the trial.

It should be noted that while contamination effects due to nesting of children within classrooms is possible, in reality such effects are likely to be

small (since the intervention was time consuming and was not accessed by the control group). Furthermore, to the extent that contamination might occur this can only serve to reduce the estimated effect size of the intervention. In this sense the effect sizes reported here might be seen as slightly conservative.

6.8 Data Analysis

6.8.1 Analysis plan

All analyses will be performed on an intention-to-treat basis. The estimated effects of the intervention will be calculated using latent variable ANCOVA models. Each latent outcome variable at post-test will be regressed on both the corresponding latent variable at pre-test and a dummy variable which indicates which group allocation (intervention group = 1; control = 0).

The primary outcome measure is a latent language variable derived from the five in-depth language subtests (CELF 4 Recalling sentences; CELF 4 Formulated Sentences; CELF 4 Understanding Spoken Paragraphs and Renfrew Action Picture Test – Information and Grammar).

Four further secondary latent outcomes will be measured. First, a latent language variable derived from the four LanguageScreen LS subtests (Receptive Vocabulary, Expressive Vocabulary, Listening Comprehension and Sentence Repetition). Second, a latent variable measuring children's

expressive writing from the Writing Assessment Measure (WAM; Dunsmuir et al., 2015). The writing variable is derived from four writing measures, Sentence Structure and Grammar, Vocabulary, Organisation, and Ideas. Intervention vocabulary outcomes will be measured using the bespoke taught and untaught vocabulary assessment. Bespoke taught words are a selection of the words that children have been directly taught in the intervention and bespoke untaught words are words taken from vocabulary items which they have heard in the oral passages read to them during the intervention but which they have not been directly taught. Finally, as a control measure to ensure that intervention effects can be attributed to receiving the OLLI programme and not due to general improvements, a further secondary outcome is an arithmetic latent variable based on the one-minute addition and one-minute subtraction tests from the Test of basic Arithmetic and Numeracy Skills (TOBANS; Brigstocke et al., 2016).

6.9 Conclusion

This chapter has presented a critical discussion of the RCT design and has considered the advantages and challenges that it presents when used in the evaluation of educational interventions. The present study has adopted the evidence-informed methods that will ensure that a robust trial is being undertaken. The sampling methods, sample size and population from which the sample is taken will ensure that the findings can be generalised

to the wider population of children in the upper primary years in schools in England.

7 Results

7.1 Introduction

This chapter presents the results of the RCT to evaluate the effectiveness of the OLLI programme in improving the language skills and expressive writing skills of children with identified language weaknesses. The analysis of data for all outcome measures is described together with the methods used in the analysis. An overall summary of the data for all measures pre-intervention and post-intervention is presented first followed by a detailed description of data on all outcome measures. The outcomes for the children randomised to the intervention arm of the trial are compared with the outcomes for the waiting list control group. A summary of the feedback comments from the schools is presented. The chapter concludes with a summary of the findings.

7.2 Analyses

All analyses were performed on an intention-to-treat basis. The majority of the analyses were conducted in Stata 18.0 (Stata Corp, College Station, Texas, USA). Structural equation models (SEM) were constructed using Mplus 8.10 (Muthen & Muthen, 1998-2023) with Full Information

Maximum Likelihood estimators to allow for missing data. The analyses followed the pre-registered plan (<https://www.isrctn.com/ISRCTN78621766>).

At t0 the language skills of 1423 children in 50 Year 4 classes in 33 mainstream primary schools in England were tested by staff in participating schools using an automated language screening app, LanguageScreen (LS). The total LS raw scores obtained by children in each participating class were used to rank the children by class on language ability. The six children in each class with the lowest LS total raw score (n=296) were eligible to receive the intervention. These six children were then randomised, stratified by class to either the intervention or waitlist control arm of the trial.

Prior to the start of intervention delivery, t1, children in the intervention and waiting list control groups were further tested on in-depth measures of language ability, expressive writing, and arithmetic skills. The in-depth language assessments were administered to children individually by trained research assistants blind to group allocation. The assessments of expressive writing and arithmetic skills were administered by teachers or teaching assistants as a group task with all six children together.

After screening and in-depth testing, 2 classes from one two-form entry school withdrew from the trial due to COVID-19 related staffing issues. The 12 children from this school were retained in the Intention to Treat analysis

which will be presented later in this chapter. 148 children were randomly assigned to the intervention group who began to receive the intervention in January 2022, and 148 children were allocated to the waiting list control group who would begin the intervention once all post-testing of both intervention and control groups had been completed in June/July 2022.

At post-test, 33 intervention children (22%) and 33 control group children (22%) were lost to follow up. This represented 7 Year 4 classes. The fact that the number of children from intervention and control groups lost to follow-up are identical is because the schools had either withdrawn from the study or because it was not possible to carry out the testing in these 7 classes and therefore none of the children participating in the trial in these classes were available for follow-up testing at t_2 .

Of critical importance, there were no significant differences at pre-test in gender $\chi^2(1) = 0.05$; $p = 0.83$), age ($d = -0.19$; 95% CI $(-.67, .19)$) or LanguageScreen total scores ($d = -.04$, 95% CI $(-.52, .44)$) between children retained in the study and tested at t_2 and children who were lost to post-test. This indicates that attrition is unlikely to bias the estimated effect sizes for each outcome measure that will be reported later in this chapter.

Descriptive statistics for all outcome measures for all measures at baseline and post-test for both intervention and control group are shown in Table 7.1. The groups are well equated on language skills at baseline.

Table 7. 1. Mean raw scores (SD) for the intervention and control groups for primary and secondary outcome measures at screening (t0) pre-intervention (t1) and post-intervention (t2), with effect sizes for intervention effects.

		Intervention n=148			Control Group n=148			Cohen's d
		N	M	SD	N	M	SD	
Age (months)								
•	• t0	99.	4.12		100.	3.80		
		70			23			
LanguageScreen (t0 & t2)								
	Expressive		.8					
	vocabulary	4						
		14	14.	3.69	14	14.3	3.27	
•	t0 - (24)	8	53		8	8		
•	t2 - (24)			3.59			3.30	0.27 ¹
		11	17.		11	16.7		
		5	56		5	3		
	Receptive		.7					
	vocabulary	7						
		14	18.	3.61	14	18.8	3.85	
•	t0 - RV (23)	8	70		8	6		
•	t2 - RV (23)			1.93			2.06	0.04 ¹
		11	22.		11	20.4		
		5	55		5	3		

Sentence	.8							
repetition	7	14	10.	2.94	14	10.36	2.85	
• t0 - SR (14)		8	64	2.83	8	11.40	2.38	0.07 ¹
• t2 - SR (14)		11	11.		11			
		5	71		5			
Listening	.8							
comprehension	3	14	10.	2.37	58	10.6	2.66	
• t0 - LC (16)		8	59	2.37	5	2	2.59	0.38 ¹
• t2 - LC (16)		11	12.		11	11.6		
		5	63		5	3		

In-depth tests (t1 & t2)

CELF-Recalling Sent	.8							
• t1-(96)	7	14	40.	13.40	14	41.3	13.37	
• t2-(96)		6	38	13.67	6	2	13.93	0.14 ¹
		11	48.		12	48.2		
		5	68		2	8		

CELFFormulating	.8							
Sent	4	14	27.	9.49	14	27.0	9.91	
• t1-(48)		6	14	7.85	6	8	7.50	0.24 ¹
• t2-(48)								
		11	31.		12	29.3		
		5	51		2	7		
CELFFUnderstanding	.8							
Para	2	8.0	8.0	2.91	14	8.23	3.16	
• t1-(15)		9	9	2.53	6	9.30	2.82	0.34 ¹
• t2-(15)								
		10.	10.		12			
		25	25		2			
APT information	.8							
• t1 -(40)	6	14	28.	5.08	14	28.7	4.50	
• t2-(40)		6	11	4.54	6	0	3.62	0.38 ¹
		11	31.		12	30.1		
		5	73		2	4		
APT grammar	.7							
• t1-(36)	4	14	22.	5.26	14	22.9	5.10	
• t2-(36)		6	74	4.73	6	5	4.52	0.31 ¹
		11	27.		12	25.5		
		5	01		2	0		
WAM-Sentence	.8							
Struc	6	12	1.3	0.88	12	1.22	0.84	
• t1-(4)								
• t2-(4)								

		0	5	0.84	3	1.56	0.92	0.11 ¹
		98	1.7		98			
			8					
WAM-Organisation	.85							
• t1-(4)		120	1.0	0.64	12	1.11	0.	
• t2-(4)		98	8	0.61	3	1.30	73	0.40 ¹
			1.5		98		0.	
			8				74	
WAM-	.85							
Vocabulary		1	1.38	0.68	12	1.41	0.70	
• t1-(4)		2	1.95	0.85	3	1.65	0.79	0.44 ¹
• t2-(4)		0			98			
		9						
		8						
WAM-	.84							
Ideas		1	1.	0.77	1	1.	0.78	
• t1-(4)		2	20	0.77	23	19	0.87	0.42 ¹
• t2-(4)		0	1.		9	1.		
		9	80		8	41		
		8						
TOBANS-Addition	.9							
• t1		2	11	21.	11	22.2		

• t2	4	22	11.69	4	5	13.89	
	96	25.	12.00	10	23.2	12.00	0.13 ¹
		31		3	8		
Tobans-Subtraction	.8						
	8						
• t1	1	16.8	9.61	11	16.	11.98	
• t2	1	0	10.37	2	68	13.23	0.01 ¹
	4	19.4		10	18.		
	9	0		3	65		
	6						
Bespoke Vocab -	.9						
Taught	4						
	14	2.0	2.22	1	2.21	2.48	
• t1-(12)	6	5	3.13	4	4.65	2.64	1.06 ¹
• t2-(12)	11	7.0		5			
	5	3		1			
				2			
				2			
Bespoke Vocab -	.9						
Untaught	4						
	14	1.3	1.14	145	1.	1.39	
• t1-(6)	6	0	1.61	122	29	1.21	0.35 ¹
• t2-(6)	11	2.9			2.		
	5	1			41		

¹Effect size for the intervention based on difference in progress between groups from ANCOVA model divided by pooled SD for the measure at t1 (see Morris 2008); figures in brackets are the maximum possible score on each measure at each time point.

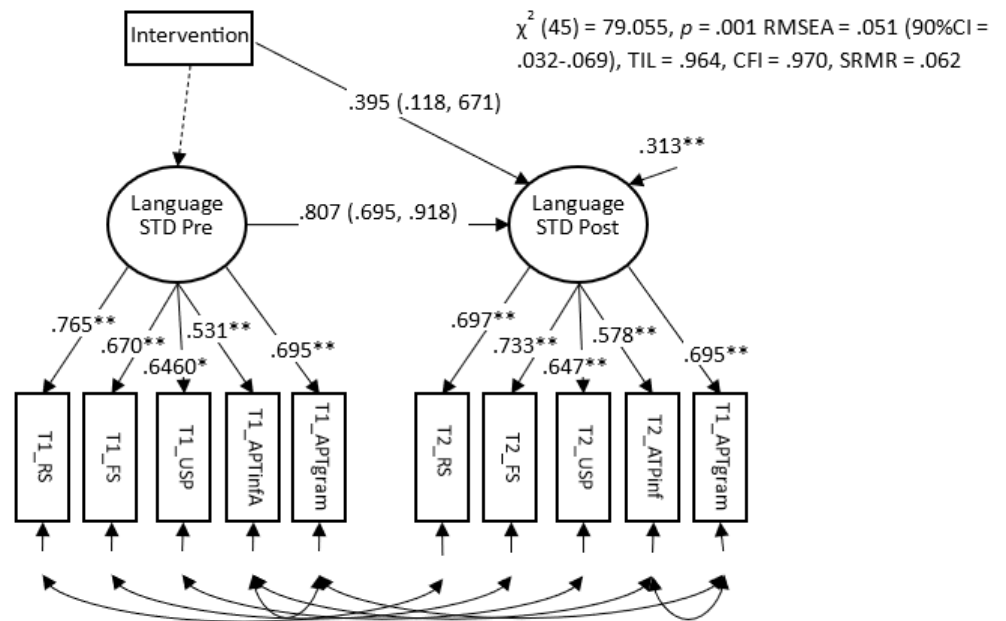
7.3 Effect size estimates for the pre-registered outcomes

The effects of the intervention were estimated with ANCOVA models, where the relevant latent outcome variable at t2 was regressed on both the corresponding latent variable at t1 and a dummy variable indicating group membership (intervention = 1; control = 0). Before estimating the effect sizes from the latent variable models, Confirmatory Factor Analyses (CFAs) for the pretest and post-test latent variables were estimated to assess the adequacy of model fit and to establish whether metric or scalar invariance held for the latent variables across time. In each model the residuals for the same latent variable indicators were correlated, when significant, between the two times of measurement to provide an adequate model fit. The effects of the intervention were measured by the γ -standardized regression coefficient for a group dummy variable. The effects of clustering within schools were accounted for by using robust (Huber-White) cluster standard errors. For each ANCOVA model we checked for equality of slopes between the covariate (pretest factor) and outcome by including a group by covariate interaction term. In all cases these interactions were small and nonsignificant and were, therefore, not included in the models reported. This indicates that the effects of intervention for all measures did not vary as a function of initial levels of

the covariate, i.e. that children responded equally well to the intervention irrespective of their starting levels.

The pre-registered primary outcome was a latent language variable created from the five individually administered language tests (CELF 4 Recalling Sentences; CELF 4 Formulating Sentences; CELF 4 Understanding Spoken Paragraphs; Renfrew Action Picture Test - Information and Grammar). An initial CFA model where only the correlations between the residuals of the same variable across time were estimated did not fit well. To improve the fit of the model the residuals for the two measures derived from the APT test (information and grammar) were correlated at each time point. This was deemed appropriate since these two scores are derived from the same responses given by the child. The resulting ANCOVA model is shown in Figure 7.1. The model fitted the data well and displayed scalar invariance (unstandardised factor loadings and intercepts did not differ across time (Wald test: $\chi^2(8) = 10.791$, $p = .214$). This model showed a substantial effect of intervention ($d = .395$, $p < .001$). (A preliminary model showed that the interaction between baseline and intervention group (unstandardized $\beta = .054$, $p = .668$) was small and nonsignificant, indicating equal regression slopes in the two groups.)

Figure 7. 1. Effect of intervention on standardised measures of language ability

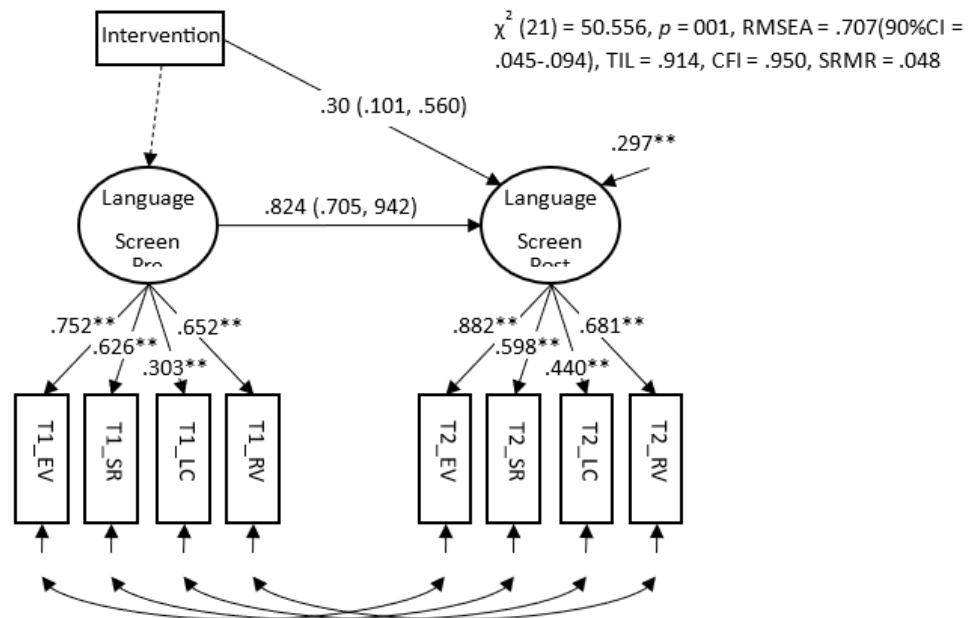


Note. Path diagram for the pre-registered primary outcome for the trial showing the effect of the intervention on standardized measures of language ability. The effect of the intervention is shown by the path from Intervention (dummy coded) to language at post-test, which is y-standardised and equivalent to Cohen's *d*. 95% robust confidence intervals accounting for clustering within schools are shown in brackets.

A secondary pre-registered outcome measure was a latent language variable created from the four LanguageScreen subtests (Receptive Vocabulary, Expressive Vocabulary, Listening Comprehension and Sentence Repetition). This model is shown in Figure 7.2 and showed a mediocre fit to the data. The mediocre fit here appeared to reflect problems with the distribution of scores on the Receptive Vocabulary subtest; this measure

was skewed due to a trend towards a ceiling effect. This model did not show metric invariance since the unstandardised factor loading varied between the two timepoints time (Wald test: $\chi^2(3) = 12.844, p = .005$). The estimated effect size of the intervention from this model was substantial ($d = .30, p < .001$). (A preliminary model showed that the regression slopes did not differ between groups (unstandardized $\beta = -.163, p = .449$)).

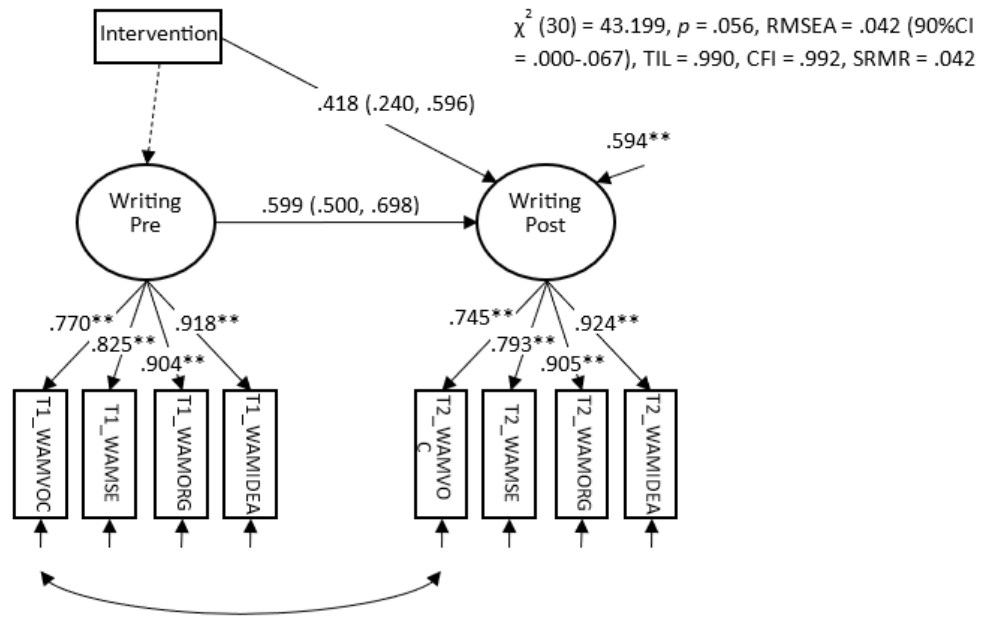
Figure 7. 2. Effect of intervention on LanguageScreen



Note. Path Diagram for a pre-registered secondary outcome for the trial showing the effect of the intervention on LanguageScreen. The effect of the intervention is shown by the path from Intervention (dummy coded) to language at post-test, which is y-standardised and equivalent to Cohen's d . 95% robust confidence intervals accounting for clustering within schools are shown in brackets.

Another secondary pre-registered outcome measure was a latent variable assessing children's expressive writing from the Writing Assessment Measure (WAM; Dunsmuir et al., 2015). This factor is defined by four measures derived from the WAM - sentence structure and grammar, organisation and planning, vocabulary, and ideas. The model can be seen in Figure 3 and shows scalar invariance across time: Wald test: $\chi^2(6) = 7.465, p < .280$). The estimated effect size of the intervention from this model was large and significant ($d = .418, p < .001$). (A preliminary model showed that the regression slopes did not differ between groups (unstandardized $\beta = -.017, p = .902$)). The effects here on the WAM show that an intervention that focuses purely on children's receptive and expressive language skills transfers directly to improvements in children's written expression, which is a key educational outcome for children of this age and above.

Figure 7. 3. Effect of intervention on expressive writing skills



Note. Path diagram for a pre-registered secondary outcome for the trial showing the effect of the intervention on expressive writing skills. The effect of the intervention is shown by the path from Intervention (dummy coded) to language at post-test, which is y -standardised and equivalent to Cohen's d . 95% robust confidence intervals accounting for clustering within schools are shown in brackets.

7.3.1 Control task

A further secondary pre-registered outcome measure was a latent variable assessing arithmetic skills based on the one-minute addition and subtraction tests from the Test of Basic Arithmetic and Numeracy Skills (TOBANS; Brigstocke, Moll & Hulme, 2016). This was a control measure,

designed to ensure that intervention effects could be directly attributed to the intervention. OLLI was not expected to improve children's arithmetic skills. The model is shown in Figure 5 and showed scalar invariance (the unstandardized factor loadings and intercepts did not differ across time, Wald test: $\chi^2(2) = 2.916, p = .233$). The estimated effect size of the intervention from this model was, as expected, trivial in size and not significant ($d = .070, N.S.$) (A preliminary model showed that the regression slopes were almost identical across groups, (unstandardized $\beta = .029, p = .761$).

Figure 7. 4. Effect of intervention on arithmetic skills

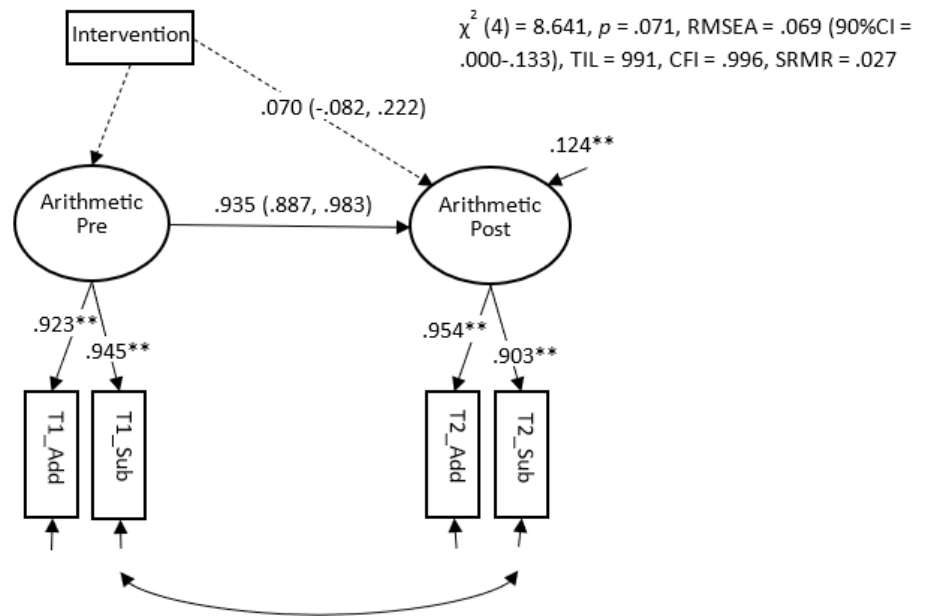


Figure 7.4 Path diagram for a pre-registered secondary outcome for the trial showing the effect of the intervention on arithmetic skills. The effect of the intervention is shown by the path from Intervention (dummy coded) to arithmetic skills at posttest, which is γ -standardised and equivalent to Cohen's d . 95% robust confidence intervals accounting for clustering within schools shown in brackets.

Note. Path diagram for a pre-registered secondary outcome for the trial showing the effect of the intervention on arithmetic skills. The effect of the intervention is shown by the path from Intervention (dummy coded) to arithmetic skills at post-test, which is γ -standardised and equivalent to Cohen's d . 95% robust confidence intervals accounting for clustering within schools are shown in brackets.

A final pair of secondary pre-registered outcome analyses assessed whether bespoke taught vocabulary (i.e. defining words directly taught in the intervention) and bespoke untaught vocabulary (i.e. defining words of similar difficulty to the bespoke taught words, but which were not directly

taught in the intervention) were improved by the intervention. Hierarchical linear models with random intercepts for school, pretest as the covariate, post-test as the outcome and group (dummy coded) showed significantly larger improvements in scores in the intervention group on both taught (difference in marginal means = 2.56, 95% CI 1.97, 3.15; $d = 1.09$) and untaught vocabulary (difference in marginal means = 0.45, 95% CI 0.13, 0.76; $d = 0.35$). (In both cases preliminary models showed that the slopes relating outcome to pretest scores did not differ). As expected, the improvements on directly taught vocabulary are very large, but importantly the effects on untaught vocabulary are also substantial in size, demonstrating generalisation to the ability to define the meanings of words not directly taught.

7.4 Intervention dosage

The recommended dose of the OLLI programme is 20 weeks. The intervention comprises sixty 30-minute sessions delivered 3 times per week over the 20-week duration of the programme. Schools reported that on average, 13.64 weeks of the programme were delivered (range = 0 – 20 weeks). 40% of schools delivered the programme for 10 weeks or less, 30% of schools delivered 13 – 16 weeks of the programme, and 30% of schools completed 16 – 20 weeks of the programme. Data from all schools was included in the analyses and reported in the data presented earlier in the chapter. This suggests that the effect sizes may be likely to be

underestimates of the effect sizes that would be expected if children had received the full 20-week programme.

7.5 Answering the research questions.

Each research question will now be answered directly based on the results that have been described in this chapter.

7.5.1 Research question 1

Can the Oral Language for Literacy Intervention (OLLI) improve the language skills of children aged 8 – 10 years?

The results presented above confirm that the Oral Language for Literacy (OLLI) programme can substantially improve the language skills of children aged 8 – 10 years. Children in the intervention group made substantially greater gains in language skills than children in the control group as measured by the primary outcome measure of in-depth tests of language and the secondary outcome language screening measure.

7.5.2 Research question 2

Does the teaching of oral narrative skills in the intervention improve children's written expression?

Large, significant effects of the intervention on expressive writing skills were detected. The focus in the intervention on listening to a range of

fiction and non-fiction passages and poems, and on children developing their own oral narratives through the course of the programme supports the transfer of expressive language skills to expressive writing.

7.5.3 Research question 3

Can OLLI improve children's understanding of bespoke taught vocabulary?

The intervention group showed significantly larger improvements in their ability to define taught vocabulary items. As these words were directly taught in the intervention sessions, it was hypothesised that the intervention group would perform better on an assessment of these words.

7.5.4 Research question 4

Can OLLI improve children's understanding of bespoke untaught vocabulary?

A substantial improvement was also seen in the ability of the intervention group to define words which they had heard in the intervention passages and poems that were read to them, but which they were not directly taught. This suggests that exposing children to a rich variety of Tier 2 words and teaching strategies taught to support children to derive the meaning of unknown words facilitates the generalisation of vocabulary skills.

7.5.5 Attributing improvements to participation in the OLLI programme

It was hypothesised that children's arithmetic skills would not improve as a result of participating in the intervention. Improvements in arithmetic skills by the intervention group were very small and not significant, demonstrating that the gains made in language and expressive writing skills were specific and did not reflect a Hawthorne effect due to the greater attention given to the intervention group.

7.6 Conclusion

The results demonstrate clearly that the OLLI programme is effective in improving children's oral language and expressive writing skills. A wide variety of rich Tier 2 vocabulary has been integrated into the fiction and non-fiction passages, and poems written for the OLLI programme.

Exposure to these words in carefully crafted oral narratives has supported children to derive the meaning of words, even when these are not directly taught.

8 Qualitative Feedback from schools

8.1 Introduction

This chapter will present the feedback received from the schools who participated in the randomised controlled trial evaluating the effectiveness of OLLI. Feedback from the trained teaching assistants (TAs) who delivered the intervention will be presented together with feedback from teachers of the participating Year 4 classes. Their feedback demonstrated an overwhelmingly positive response to the programme content and resources, and the usefulness of the fully scripted OLLI manual. Qualitative data from observations of sessions undertaken by the author will be presented. Feedback from teachers and senior leaders in schools will be discussed showing the impact that participating in the intervention has had on oral language provision in some schools. High levels of pupil engagement and progress in learning were reported. This chapter will then present the qualitative feedback from children who received the intervention. Finally, the challenges highlighted by schools regarding intervention delivery and the deployment of TAs to an intensive intervention over a 20 week period will be discussed.

Due to the large scale of the RCT to evaluate the effectiveness of OLLI, it was not within the scope of the present study to collect full, formal

feedback from all participants. Nonetheless, it was important that feedback was obtained from a representative sample of participants to inform the future development of the OLLI programme and identify where revisions may be required before it is made available to schools on a wider scale. Therefore, informal feedback was sought from participants throughout the delivery phase through monitoring and support visits, and communication and discussions following observations of intervention sessions that were undertaken in twelve Year 4 classes, representing 24% of the sample of 50 participating classes.

8.2 Feedback from TAs

During school monitoring visits and online discussions, informal feedback was obtained from the class teachers, and the TAs who delivered OLLI following the online training. The feedback received was overwhelmingly positive. TAs reported that they enjoyed delivering the programme and that the children displayed high levels of engagement with the programme content during the intervention sessions. Specific feedback from teachers and TAs on the programme content and materials will now be presented.

8.3 Overall impressions of OLLI

Each school received a fully scripted OLLI manual and all accompanying photocopiable resources in high resolution colour. The programme was designed to ensure that TAs and children would engage well with the

programme materials and that intervention delivery would be efficient and effective. Teachers and TAs were extremely positive about the OLLI programme content, resources and the scripted session materials. Having observed a TA-delivered intervention session in the sixth week of the programme, a teacher in one school shared her view of the programme,

“It’s an excellent intervention and the resources are excellent.”

Following the delivery of the first three weeks of the programme, a TA in one school commented that,

“The sessions are easy to follow with the resources provided.”

Schools were contacted by the author every 3-4 weeks throughout the delivery phase to check how intervention delivery was progressing and to offer any support required. At the end of a monitoring visit to one school during the fourth week of the programme, the TA who was delivering the programme reported,

“I love this intervention; it is absolutely brilliant...Thank you for creating this wonderful programme.”

This comment was echoed by a local authority Educational Psychologist (EP) who was visiting the school and who observed the delivery of an OLLI session during the visit. The TA shared the EP’s comments:

“I was observed by our school’s Ed Psychologist delivering this, he thought it was marvellous and incredibly well resourced, and I am in complete agreement with him.”

TAs expressed the professional satisfaction that they derived from delivering OLLI. One TA who delivered the intervention to two Year 4 classes commented during a monitoring visit,

“I love it! It’s my favourite part of the day. It’s the only bit of the day where I do real teaching.”

Importantly, many schools reported that both the TA and the children were enjoying the delivery and participation in OLLI sessions with early learning gains being reported. The SENCO from a two-form entry school with two TAs deployed to deliver OLLI reported that,

The TAs who have been involved in the delivery of the programme, have enjoyed the work they have done with the children and, as I think they described to you, they have seen benefits for the individuals which will have a longer lasting impact.

Reports from many schools in the first 4 to 5 weeks of the intervention delivery indicated that children receiving OLLI became very engaged and enjoyed the programme from an early stage. One TA commented in the fourth week of the programme,

“The children are really enjoying it and we can already see the benefits of the group.”

A TA in another school, who had not previously been deployed to deliver targeted interventions reported during an observation visit,

“The kids absolutely love it!”

The children’s enjoyment of the programme was reflected in feedback received from other schools. In one school in which the SENCO had been trained to deliver the programme due to high levels of TA absence, it was reported that,

“The group absolutely love coming out for the sessions. I’m not in school on Monday, so they have insisted that I deliver the session today [Friday] instead.”

The enthusiasm for the sessions was evident in another school from a TA also new to targeted intervention delivery,

“I passed one of the children in the corridor today [Week 4]. The child said, ‘Are we doing the intervention tomorrow?’ I laughed and replied, ‘No, tomorrow is Saturday, and I’m not coming in to school!’”

The children’s engagement was also supported by familiarisation with the structure of the sessions,

“They love coming to the session and ask to go even when it isn't time. In the sessions all of the children are engaged and can now predict the routine of what comes next.”

High levels of engagement and contribution to the sessions were also noted in two Year 4 classes by a TA new to literacy intervention delivery,

They're very keen to take part and are all contributing at each session. They remember the word of the days and meanings when we recap them at the end and also at later sessions too. They have included some of these words when filling in the activity sheets too.

On completion of the 20-week programme, the literacy lead of one school advised that

“The children very much enjoyed taking part in the intervention, particularly making up and recording their own stories and learning jokes and idioms.”

8.4 Pupil learning

A number of schools provided feedback on how the children's enjoyment of the programme and engagement with the narratives and activities in OLLI had led to a positive impact on the children's learning, confidence,

and to the generalisation of the vocabulary learnt in the intervention sessions to classroom learning,

The children are enjoying the oral language group. They have been incorporating some of the words in their work which is wonderful to see...Their enthusiasm is marvellous. One of the children is more confident in answering questions in class using the words from our group.

In another school, the impact of the programme on vocabulary learning, generalisation and confidence was reported by the TA delivering the programme, stating that,

One of the children used a vocabulary word from the intervention in his lesson, writing it in a story, which was surprising, as he rarely spoke in the intervention. He went on to engage more and more as the sessions went on. He [the child] spoke through the whole of the last session and recorded several sentences of a story. This is huge progress. He also now talks to me on the way to sessions and joins in with jokes, when he didn't before.

There is a focus in each OLLI session on the explicit teaching of a new Tier 2 vocabulary item. The children then encounter this new word in the context of a passage or poem read aloud to them by the TA in the session. These words are revisited and revised in subsequent sessions. Schools reported that children displayed a high level of interest and engagement with the 'word of the day' in each session,

"The children really like learning the new words and using them. I'm being begged to tell them what the next word is from the following session. A passion for vocabulary is always a good thing."

In addition to these targeted words that are directly taught, the fiction and non-fiction passages and poems have been written to include a range of other Tier 2 words which can be used in a range of different contexts. Linked to reciprocal teaching with spoken language, all children in the intervention group are provided with a clarification card, a card with the clarification image displayed on it:

Figure 8. 1. *Clarification Card*



The session scripts include guidance for the TA to encourage children to raise their clarification card if they hear a word in the passage or poem that they do not understand, so that the TA can pause with reading aloud and the group can work together to try to work out the meaning of the unknown word from context. The TA is encouraged to praise the children for requesting the clarification of unknown words to both encourage children to do this and to support them to recognise the importance of understanding the meaning of unknown words in building global understanding of the passage. If the children are unable to work out the

meaning of the word with TA scaffolding and support, the TA supplies the correct meaning of the word as it used in the context of the passage. Children were reported to enjoy seeking the clarification of words that were unfamiliar to them,

“The children love asking for words in the passage to be clarified.”

In Week 4 of the programme, one school reported on the children’s response to this method of vocabulary learning,

“The children are fixated on remembering the special words of the week. It’s really interesting actually when they’re using their clarification cards, the words we expect them to know the meaning of, they don’t.”

The goal of the intervention is that children will generalise learning from the intervention into classroom learning. Teachers and TAs in some schools reported evidence of the generalisation of newly learned vocabulary, advising that children were applying the vocabulary learnt in the intervention to classroom learning and in their own spoken language. They reported also that children were responding positively to the review and consolidation of taught vocabulary,

The children have really benefited from the intervention as they are using a lot of the vocabulary in other aspects of learning. In each session, the children enjoy reviewing the vocabulary and are becoming more fluent at applying it in the correct context.

Importantly, children's use of the taught vocabulary in spoken language around the school was noted by school staff who were not directly involved in the intervention,

"I would like to share with you that the children have showed such a huge interest in the intervention. My colleagues overheard children talking about the new words that they have learnt and also the subject knowledge."

The observation by school staff of children applying their new vocabulary knowledge to spoken language was shared by a TA during a monitoring visit in Week 8 of the programme,

"The children sometimes use the new words orally in class, which is great! They understand the meaning of the new words but sometimes forget the actual word itself."

The generalisation of knowledge and skills taught in the OLLI sessions to classroom learning was noted by a number of schools,

"There are lots of positives that have noticeably transferred to the class setting which is great."

In addition to the application of taught vocabulary to spoken language in school, participation in OLLI programme was also reported to spark a greater interest in literacy more broadly in one two-form entry school,

“Children began to spontaneously use learnt language in their everyday speech, but more importantly, they started to show a deeper interest in literacy.”

There was some evidence that children were retaining knowledge of the vocabulary taught in earlier sessions,

The children are also remembering the vocabulary they have been learning, even from earlier on in the program, which is fantastic! They are always eager to let the ladies know when they have used them or when they recognise them in class.

Children were observed to have noted the presence of the taught vocabulary items in spoken and language in school. One SENCO reported that,

The highlight of last week was at the end of a session during which we had discussed the word ‘churning.’ I showed them a video of someone churning butter and they were very excited to spot the word ‘separate’ from the previous day’s word of the day.

The word ‘churning’ is a Tier 2 word that was not directly taught to the children, but which had been included in a non-fiction passage about a child who had been evacuated to the country during World War 2. The passage described how the child was helping with tasks on the farm.

Discussion in the session to clarify the meaning of the word ‘churning’ encouraged the children to recall and consolidate their understanding of the word ‘separate’ which had been directly taught in the previous session.

Children were also reported to have noticed the presence of taught words in written language. In Week 1 of the programme, the children learn the

meaning of the word *apprehensive*. This is taught in the context of a story about a child who is apprehensive about stroking a cat he has encountered because of the way that the cat is looking at him. To support the children's understanding of the meaning of the word, they are shown illustrations of a child feeling apprehensive about a doctor's visit, a dental examination and a maths test.

Figure 8. 2. *Apprehensive Images*



A SENCO from a two-form entry primary school reported that a child had approached her during the day to tell her that,

“We had been reading the class book and the word apprehensive was in it and I knew it.”

In addition to the generalisation of vocabulary learned in the intervention to classroom learning, the understanding of idioms learned in the intervention and their generalisation by the children to spoken language outside the intervention was noted by a number of schools. The idioms

that form part of the figurative language activities and games in the intervention sessions were initially seen by some schools as challenging for the children. However, as children and TAs became more accustomed to the idioms, the children enjoyed learning and applying idioms in their spoken language. A TA who was deployed to deliver the intervention in one school reported that,

The children love the idioms and have been saying them outside the intervention. They heard one of the children in the playground meeting the caretaker and saying, 'I'm on Cloud Nine.' The caretaker was taken aback and ask they child what they meant. The child was able to explain the meaning.

In one school, the Deputy Head Teacher who had been trained in the delivery of the intervention was covering the sessions due to TA illness, had missed one of the sessions as she needed to respond to an unexpected incident. She contacted me the following day after the delivery of the rescheduled session,

A lovely little addition this morning. The children came in to work with me and asked why they hadn't worked with me yesterday. I explained that a few things had happened which had taken my time away, to which one child responded, 'Come on, spill the beans!' He has only been learning English for two years.

Particularly noteworthy about the examples of idioms learned in the OLLI session and used by children which have been described here is that they occurred outside the intervention sessions and that they were used

spontaneously and in the correct context. This provides evidence of the generalisation of taught figurative language to other learning and social contexts.

In order to expose the children to figurative language in context, idioms were included in some of the narratives and poems that were read aloud to the children in the sessions. Children's increasing familiarity with idiomatic phrases as the programme progressed was shown to lead to not only the understanding and recall of the meaning of the idioms that they had learned, but also a heightened awareness of idioms in the context of the passages being read to them,

They've also started to recognise and remember the meanings to some of the idioms we have been doing. One of them even pointed out an idiom in one of the passages before I even had to ask, which was great to see.

In some classes, the children's awareness of figurative language appeared to be raised by exposure to the jokes and idioms in the programme,

“The children are enjoying the jokes and idioms and they are noticing when idioms and figures of speech are used in the classroom now. It's wonderful to see them interact with these.”

8.5 Impact of OLLI on TAs delivering the programme

Feedback from TAs, and from teachers and senior leaders who had observed the impact on TA practice and confidence indicated positive outcomes of involvement in the intervention delivery. Some schools reported that not only did the TAs enjoy delivering the intervention, but that they were also developing greater confidence in their performance as a result of leading the programme. This was seen in one school in which a TA new to the school and to intervention delivery had expressed some concern before the OLLI training and the start of the programme about being deployed to deliver OLLI. In the fourth week of the programme, the SENCO reported that the TA,

“is really developing confidence and taking the lead so it’s great development for her too.”

There were reports from school leadership teams of the impact that participating in the OLLI evaluation had on the TAs who were deployed to deliver the programme. Following completion of the full 20 weeks of OLLI, one two-form entry school provided feedback on the programme and also on the impact that participating in research involving an oral language intervention had on their school,

The training provided as part of the preparation for delivering the intervention, helped the TAs appreciate the value of oral language. They began considering children who they felt might be flagged by the Language Screen.

Initially TAs feared that delivering another intervention might not be manageable within their timetable. This was especially the case for a TA who has worked as a one-to-one support for a SEND child for the past few years. There were concerns that the SEND child would struggle without her support, while she was delivering the intervention times. In fact, this wasn't the case and has led to him developing independence within the classroom.

The intervention pre-training, along with the delivery of the intervention, enabled professional development for the TAs. They grew in their understanding of the importance of children's oral language development, and how to support it. It has also helped them understand the importance of a child's learning rather than completion of task.

Delivering the intervention enabled staff to get to know children who are quieter within the classroom environment. TAs became familiar with their strengths and interests as well as gain a deeper understanding of support strategies which work best for the children.

Supporting the roll out of small group oral language support to the rest of the school has empowered the TAs who delivered it. They contributed to staff INSET and have suggested resources and teaching tips to other TAs taking on a delivery role.

The school also considered the impact that the intervention had on the children who had received the OLLI programme and on the relationship between TA and children,

Classroom staff noticed that from after just a couple of weeks, children receiving the intervention had developed a better relationship with the TA delivering the intervention to them. It became evident that the children were enjoying the intervention they would ask when it was happening and would express disappointment on days it wasn't taking place.

By the end of the 20 weeks, children receiving the intervention appeared to be more willing to contribute to whole class discussions. They more readily approached any member of classroom staff to ask for help.

Children also developed skills of listening to each other in this small group setting.

Beyond the TAs and children in Year 4 who were directly involved in the OLLI programme, the school reported that involvement in the project had created a broader impact on whole school provision. Participating in research involving an oral language intervention raised the profile of oral language across all primary classrooms.

The idea of supporting oral language development within a targeted group became a model we felt would benefit children throughout the school. Using the ideas of NELI in Reception and the Oral Language Intervention in Year 4, class staff were given time to plan an intervention that would benefit children with language difficulties.

Taking part in this research project created a platform for us to build on. Teachers have combined this platform, together with their pedagogical knowledge and their familiarity with resources such as colourful semantics to design interventions to meet the needs of the children in classes from Nursery to Year 6.

The impact that participating in the research had on oral language assessment and provision was also reported by another two-form entry school on completion of the programme,

The intervention introduced us to LanguageScreen which is now used as a screener for every child entering the school. This allows us to understand children's oral language needs as early as possible and put interventions in place. Taking part resulted in leaders identifying lack of understanding of the impact of oral language amongst staff and therefore, following completion of the study, a whole staff Oral Language inset was delivered by the literacy lead, which made teachers aware of impact of oral language interventions on reading.

8.6 Observations of intervention sessions

All schools were offered observations by the author to provide guidance, support and feedback. These observations were informal and were followed by a feedback discussion with the TA. Twelve of the 50 participating classes requested observation visits. Of these, five visits were requested as the SENCO believed that the intervention was being delivered well and were keen for the TA to have an opportunity to demonstrate their practice in the implementation of the programme with the author and to receive feedback on their delivery. Staff from the schools in the remaining seven classes requested observations to seek confirmation that OLLI was being implemented as designed and with fidelity and to receive feedback on any aspects of delivery in which they could improve. Two of these seven classes also requested a modelled session which was provided and then a return visit was subsequently made to observe TA delivery of the session and to provide feedback.

Following the observations, as part of the monitoring, the session records for which a template was included in the programme resources, were reviewed with the TA. In 10 of the 12 classes, these had been routinely completed and provided a good measure of programme fidelity. Brief notes had been kept regarding how the sessions went and how the children responded to the activities. The session records in 2 of the 12 classes had not been completed for every session. During the feedback

after the session observation, the TAs were reminded to complete the records briefly straight after each session. They reported that the pressure to return to their other classroom duties immediately after the session ended resulted in there not always being time to fill in the records.

In the 5 classes in which school staff had requested observations, the learning environments were well organised, (See Figure 8.3) with all materials ready before the session. The teaching resources, children's folders, resources and reciprocal teaching clarification cards were set out on the table.

Figure 8. 3. *Preparation for an OLLI Session*



In another school, an overview of the session and the listening rules were displayed in the intervention room (See Figure 8.4).

Figure 8. 4. Supporting children’s understanding of the structure and rules of the session



In the intervention room in another school (see Figure 8.5 below), in addition to the session overview and the listening rules, the reward stickers were also displayed to encourage the children to participate well in the session.

Figure 8. 5. *Session preparation and rewards for active participation*



The story mountain resource used in the Week 1 session was also clearly displayed on the whiteboard for all children in the group (see Figure 8.6).

Figure 8. 6. *The Story Mountain*



The delivery of these 5 sessions was well-paced. In each of the sessions, the children were reminded to raise their clarification cards if they heard a word that they did not understand, and the TA re-read the relevant section and supported the children to try to work out the meaning from the context. The meaning of these words was provided by the TA if the children were unable to work out the meaning with TA support. The children were very engaged in the sessions and the vocabulary from the previous sessions was revisited in each of the 5 sessions. In three of the groups, there was one child who was noticeably quieter than the other two children. The TAs encouraged their participation and checked their understanding.

In all of these 5 sessions excellent rapport between the TA and the children was observed. Two sessions were observed in Week 10 of the programme in one two-form entry school, delivered by the same TA to a group from

each class. This session involved the revision of some of the taught vocabulary from the previous 10 weeks. The children demonstrated excellent recall of the meanings of the words that they had learnt in the early weeks of the programme. The word 'refuge' was the first word that the children had learnt in OLLI programme and this word appeared in the oral narrative read to the children in the Week 10 sessions observed with the two groups.

Figure 8. 7. *Extract from The Lion and The Mouse*

“You annoyed me by waking me up when I was taking a nap in the sun, but you have amused me too with your suggestion that you might one day be able to be of help to me. Run along little mouse. You have escaped with your life today.”

With that, the mouse sprinted away from the lion as fast as his little legs could carry him. He didn't stop to catch his breath until he found refuge in the undergrowth.'

In both of the groups, the children noted the word 'refuge' and called the word out without any prompting from the TA. The TA asked if any of the children could define the word and on both occasions a child in the group was able to provide the correct definition of the word.

The OLLI Week 10 session observed with the two groups also involved the children reading aloud a radio advert for the audio story that the children had created using the prompts they had written on their worksheets in an earlier session. Each child presented their advert aloud with the other two children in the group demonstrating good listening skills. Each child then

provided feedback on the other children's performance, scaffolded by prompts from the TA. Following the session observations, the children's workbooks from the session were presented alongside the session records. These provided evidence that the programme was being delivered with fidelity.

Observations of session delivery by both the author and by senior leaders in schools who shared their comments about the observations indicated that, with training and practice, TAs were delivering sessions with confidence. This confidence was also seen in the way that TAs were developing their own strategies to use with the children. During an observation of a session, the children touched their nose every time they heard a word that had previously been one of the taught vocabulary items. The TA explained that she had encouraged them to do this to support with recall of the words that they had been taught.

As the TA read the fiction passage aloud to the children, the children touched their noses if they heard a word that they recalled from an earlier narrative or poem. The TA read the following sentence in the fable of The Hare and the Tortoise,

'The Hare awoke early each day, gobbled his food rapidly and then spent the remaining hours racing in circles around the village,'

Two of the children immediately touched their noses and the third child copied the gesture. The TA asked one of the children which word they

recalled hearing before and whether they could define the word. The child replied that they had heard the word 'rapidly' before in the narratives and that it means, 'like when you do something really quickly.'

The TA explained during the feedback discussion after the observation that when the children first heard this word in the first week of the programme in the story about Charlie's Adventure, 'the skies rapidly changed colour,' a child had raised their clarification card so that they could try to work out the meaning of the word rapidly. The TA had explained the meaning of the word and the children recalled the word when they heard it again in a story in Week 7 of OLLI and then noted it again during the Week 9 observation.

Observations such as the one described above provided some evidence that TAs were creative in how they supported children to remember the words that they had been taught in earlier sessions in the programme. Further examples of creative methods for supporting children to recall taught vocabulary were seen in an observation of a session in Week 9 of the programme. The TA read aloud a story displayed on the wall and the children all joined in and recited the story together. The TA explained that she had created the story to include all of the taught vocabulary items up to that point in the programme to help the children to remember the words through repetition.

Figure 8. 8. TA generated story to support revision of taught vocabulary

The bombs rotated persistently. I discovered it was a necessity to evacuate to a refuge. I was reluctant as I was apprehensive to be separated from my family, but I created a fantasy to transform my life.

When I arrived, I analysed a map to generate an efficient way to explore as I was curious how I would protect myself from capture.

I observed the family I lived with as I was hesitant about them, but I encouraged myself to find new ways to follow my ambition of learning all the new things on the farm.

I anticipated that I would not succeed but I was determined to do so and typically I started to construct my own vegetable garden.

8.7 Issues and challenges of delivering OLLI

Although feedback from schools was generally very positive, during the course of monitoring calls and visits, some schools raised issues that they had encountered with the delivery of the OLLI programme. The overarching theme of these concerns related to the time and resourcing required to deliver an intensive intervention such as OLLI. Some schools reported that, particularly in the early stages of the programme, it took longer than the scheduled 30 minutes to deliver a session and to complete all of the activities. At the end of the first week of intervention delivery, one school advised that,

“We have found that it is impossible to fit everything into a half-hour session, sessions are taking about 40 minutes.”

This was echoed by another school, who also noted that preparation time outside the 30-minute delivery time was also required,

“It can take a little longer than expected to deliver. It is fairly easy to follow although I think that some support staff might find it hard as you definitely need to have prepared prior to the session delivery.”

Although schools note the positive impact of the intervention on children’s use of taught vocabulary, the time taken to work through the session with the children was perceived as a challenge and reported in some classes to exceed the time stated in the manual,

“Sessions are usually taking much longer than expected, but the children are certainly using some of the new vocabulary they have learnt.”

The time taken to deliver sessions was reported to have been longer at the beginning of the programme as both staff and children became accustomed to the structure of the sessions and the amount of content included in the session activities.

The amount of content in each session was found by one school to be too challenging to cover in the time allowed, particularly when delivering the programme to children with very low levels of language,

I am also finding that some of the sessions have too much content for the allotted time as these children need a lot of prompting, input and support. Some of the children find it hard to keep up with the rapid changes of

activities within the session e.g. to switch from a listening activity to a riddle, to planning an element of their story, to focussing on idioms.

The time required to deliver sessions was also raised by a school who had two classes participating in the programme in which the groups included children with additional needs who found it difficult to process the information provided by the TA during the fast-paced session,

“The three children with more specific needs struggle to process the information due to the pace they have to work at.”

In general, most schools who reported that sessions took longer in the early weeks of programme delivery advised that as the programme progressed, they were able to complete all activities within the 30-minute session. The challenges related to delivery time taken appeared to be greater for TAs who were new to intervention delivery or who were less experienced.

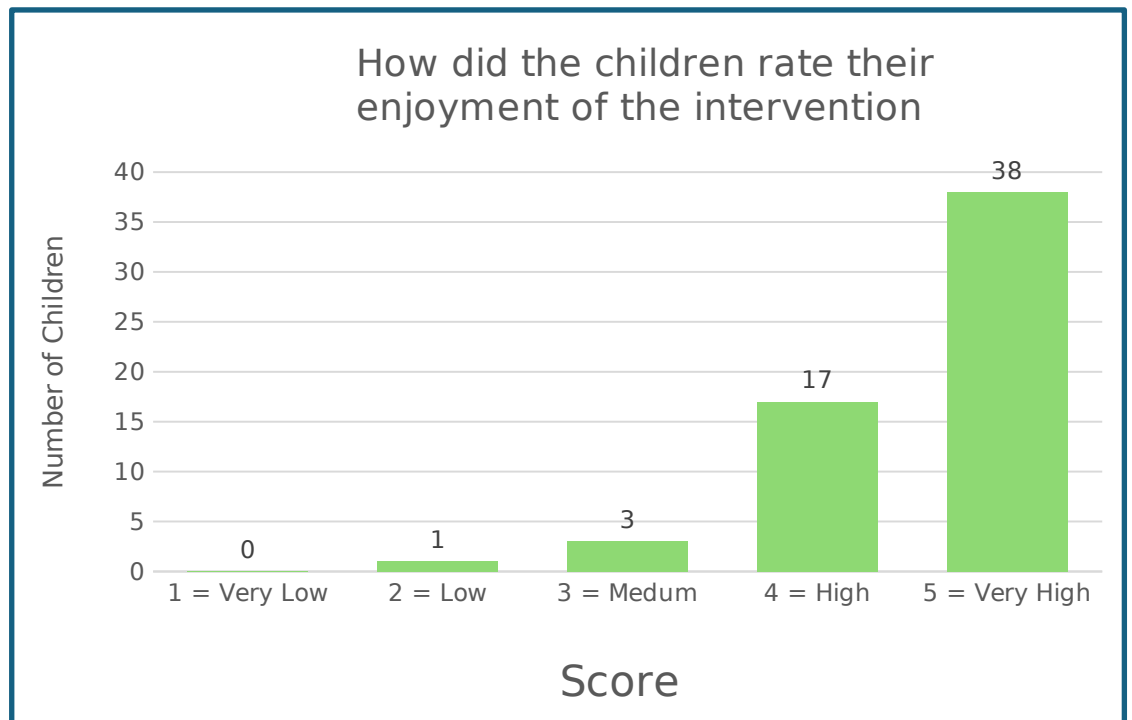
In the majority of participating classes, it was possible to deliver the intervention in the 30 minutes indicated in the manual. TAs were required to spend 2.5 hours per week delivering OLLI, which in a few classes was challenging where the TA deployed to deliver the intervention was the TA deployed to provide general Year 4 classroom support. The TAs with responsibility for supporting Year 4 classes were often deployed by the senior leadership team to deliver the intervention. During monitoring visits to schools, some TAs advised that there could be tensions between them

and the class teachers as a result of the TA being away from the classroom duties of supporting the teacher and children during classroom learning time.

8.8 Pupil Feedback

Feedback on the OLLI programme was also sought using a feedback template that included as an activity in the final session. Responses from 59 children (40% of the sample) were shared by schools with the author. Firstly, children were asked to rate their enjoyment of participating in the OLLI sessions using a smiley face 5-point Likert scale. Their responses shown in Figure 8.7 below shows an overwhelmingly positive experience, with 38 of the 59 children giving the maximum rating of 5, and 17 of the 59 children rating their enjoyment at 4 out of 5 points.

Figure 8. 9. Children's enjoyment rating of participating in the OLLI programme



Children were then asked to identify their favourite activity in the OLLI programme. Their engagement with figurative language in the form of idioms, jokes and riddles was the most popular activity, followed by creating their own oral narratives. An insight into the strategies that the children found most helpful for learning new words was sought through the feedback form. The children generated a range of response to this open text box question. The responses included using the context of the story, clarification, using pictures, drawings and bubble diagrams.

The feedback form invited children to consider an aspect of learning that they had improved in as a result of participating in OLLI. The most popular responses were learning, understanding idioms and jokes, and writing and

writing stories. Children were also asked to identify a skill that they had become more confident in using following the OLLI sessions. The understanding and use of vocabulary was rated most highly, followed by understanding idioms, and comprehensions skills.

The children were asked to reflect on their participation in OLLI sessions and to highlight their greatest achievement during the programme.

Creating their own stories was perceived as the greatest achievement for most children who responded, followed by knowledge, recall and use of new vocabulary.

Finally, children were invited to share their views on why they would recommend OLLI to other children. The most popular response was that OLLI is fun, followed by the focus of the intervention on listening and learning new information, and the view that the programme helps children to learn new words.

8.9 Conclusion

Although it was beyond the scope of this unfunded study to formally collect qualitative data from participating schools and pupils on their participation in the OLLI programme, feedback was obtained from schools who delivered the OLLI programme through monitoring visits, observations, and phone and email communication during the delivery phase and upon programme completion. The feedback was generally

highly positive with evidence that children enjoyed the programme, displayed high levels of engagement, in particular with vocabulary and figurative language learning and the generalisation of newly learnt words to classroom learning. Children's own feedback collected was also overwhelmingly positive and demonstrated that they perceived that they had made improvements in their vocabulary knowledge and retention of the meaning of newly learned words, and their understanding of figurative language, and that they were proud of their achievements in creating their own oral narratives. Finally, the challenges of deploying support staff to deliver an intensive intervention such as OLLI were evident in the feedback from some schools, alongside the difficulties for less experienced staff and those new to intervention delivery in working through all of the session content in the allotted 30 minute session time.

9 Discussion

9.1 Introduction

This chapter will begin by discussing the findings of the RCT to evaluate the effectiveness of the Oral Language for Literacy (OLLI) programme in improving the oral language and written expression of children in Year 4 with identified language weaknesses. The process of evaluating OLLI will then be considered. The impact of the Covid-19 pandemic will be discussed. The focus will then move on to consider the implications of the findings for the policy and practice of literacy teaching in primary classrooms in England, in particular in the upper primary school years. The limitations of the study that forms this thesis will be presented followed by suggestions for future large-scale evaluations of OLLI. The chapter will conclude by confirming that OLLI improves the oral language and expressive writing skills of children in the upper primary school years.

9.2 The need for oral language interventions in the upper primary school years

Oral language difficulties in children increase the risk of poor academic outcomes (Hjetland et al., 2020; Snow, 2016) poor mental health (Clegg et al., 2005) and poor occupational outcomes (Law et al., 2005). In spite of

these well-established associations between oral language weaknesses and poor outcomes in many aspects of life throughout the lifespan, the oral language difficulties of many children in the later years of primary schooling often remain undetected. Research attention has been slow to broaden its focus from increasing the evidence base for effective oral language interventions in the early years (Bowyer-Crane et al., 2008, Fricke et al., 2013; West et al., 2021) to developing and evaluating oral language interventions for children as they prepare to leave the primary school and progress to the secondary phase of education with its increasing language and literacy demands. Not only is there a scarcity in oral language interventions for older primary school aged children, in particular multi-component language interventions, a recent meta-analysis of oral language interventions has highlighted the need to improve the quality of the evidence-base through more pre-registered, robustly evaluated trials with sufficient power to produce reliable measures of intervention effect (Donolato et al., 2023).

In recognition of the gap in the field of language interventions for older children and the pressing need to address this gap with high quality RCTs, the study presented in this thesis sought to evaluate whether the Oral Language for Literacy Intervention (OLLI) can improve children's oral language and written expression in the upper primary school years, using a robust, pre-registered, large sample RCT. Earlier large scale trials have shown that oral language interventions can produce meaningful

improvements in reading comprehension and vocabulary (Clarke et al., 2010), but there is a great need for studies such as the RCT presented in this thesis to assess the effects of oral language interventions on language and expressive writing in children who have been shown to have poor oral language skills.

The RCT evaluating the effectiveness of the OLLI programme conducted in 50 Year 4 classrooms in England, with 296 children with identified language weaknesses that is presented in this thesis, has provided robust evidence that the structured oral language interventions delivered by TAs to children in the upper primary school years can substantially improve oral language and expressive writing. Of particular importance is the effects this intervention had on children who have typically been underserved by the education system. The deprivation index, as measured by income of the sample of schools in the OLLI trial was in line with the national average. The free school meals data, another indicator of deprivation and low socio-economic status was higher in the OLLI sample of schools than the national average, and the proportion of EAL pupils was almost double the national average. This demonstrates the potential of OLLI to reduce social inequality and to improve language and academic outcomes for all pupils, including those with EAL.

9.3 The outcomes of the RCT evaluating the effectiveness of OLLI

The findings of this study will now be discussed in relation to each of the research questions that this thesis sought to answer.

9.3.1 The impact of OLLI on oral language skills

The OLLI programme produced statistically significant and educationally meaningful (Kraft, 2020) improvements in children's oral language skills, as measured by the primary outcome measure of in-depth tests of oral language ($d = 0.4$) and the secondary language screening outcome measure ($d = 0.3$). This has important implications for the development of language interventions in the upper primary school years, for improving academic outcomes at the end of primary schooling and for better preparing children for the language and literacy demands of the secondary curriculum. Furthermore, these outcomes highlight the importance raising the profile of oral language in the primary curriculum and of screening children throughout the primary years for language weaknesses and then intervening with evidence-based language programmes.

9.3.2 The impact of OLLI on expressive writing

A novel aspect of the evaluation of OLLI that is presented in this thesis is that the impact of an oral language intervention on children's expressive

writing was also measured. Statistically significant and educational meaningful improvements were seen in children's expressive writing ($d = 0.41$). The focus in the OLLI sessions on listening to a range of fiction non-fiction and poetry, developing and organising oral narratives, exposure to multiple utility Tier 2 vocabulary has led to improvements not only in how children express themselves with spoken language, but also with written language. This has implications not only for language interventions, but also for broader literacy practice and provision in the primary classroom. Research has shown the inter-relationship between reading and writing and the crucial role that oral language has in both domains (Shanahan, 2006). These findings lend further weight to arguments (Wyse & Hacking, 2024) for a more integrated approach to literacy teaching in the primary classroom that places the child and their language at the heart of the learning process.

9.3.3 The impact of OLLI on the understanding of bespoke taught vocabulary

The substantial improvement ($d = 1.09$) seen in children's understanding of the vocabulary that was explicitly taught in the OLLI sessions is not altogether surprising. The emphasis and explicit teaching of specific Tier 2 words, encountering them in a passage or poem read aloud in the session, and then revising and revisiting them throughout the programme is likely to lead to improvements, as seen in contextual vocabulary learning in

previous research (Nash & Snowling, 2006) and in line with the findings of Clarke et al.'s (2010) evaluation of an oral language intervention.

9.3.4 The impact of OLLI on the understanding of bespoke untaught vocabulary

The statistically significant improvements ($d = 0.35$) seen in children's understanding of the vocabulary they encountered in the oral passages and poems that were not explicitly taught is of greater significance and interest. This provides evidence that vocabulary learning skills are being generalised as children apply strategies learned in OLLI to deriving the meaning of untaught words. The crucial role that the reciprocal teaching strategy of clarification played in the sessions may have contributed to this generalisation. Children were positively encouraged and praised for holding up their clarification cards when there was a word in the passage being read aloud to them that they did not understand. In this socially constructed learning in groups of three children, the children could learn from each other. The individual sessions then gave opportunities for further individualised clarification, consolidation and revision. The TA would then re-read part of the passage, and the group work would together to try to derive the meaning from context, with scaffolding as needed from the TA. This approach could be used in integrated reading and writing lessons in the primary classroom, allowing children to work together to construct meaning under the scaffolded support of the teacher.

And ultimately to internalise and automatise this procedure when working independently.

The improvements seen in words that were not directly taught reflects the findings of Clarke et al. (2010) where substantial improvements were also seen in untaught vocabulary. Clarke et al. (2010) suggest that these improvements may be attributable to improved metacognitive skills, and greater use of a broader range of strategies to derive the meaning of words. These improvements could also be related to the increase in exposure to a range of rich Tier 2 vocabulary. As more words are added to a child's lexicon, their sensitivity to sublexical information, or constituent parts of words, increases (Oulette, 2006).

9.3.5 Evaluating the intervention process: the role of implementation science

Gorard et al. (2017) stress the importance in any research design, but particularly with RCTs, that data collected is not simply outcome data. They highlight the value of collecting contextual and in depth data as this can support in providing an insight into why an intervention is successful or unsuccessful and in informing improvements to the intervention. They argue that this contextual data can help to identify the sub-groups of pupils who may particularly benefit from the intervention.

Proving the effectiveness of targeted oral language interventions such as OLLI using an RCT design, however, does not then in itself demonstrate that the programme can be successfully implemented on a large scale in schools in such a way that it can influence meaningful changes in policy and practice in language and literacy provision in primary schools. For an understanding of this, we must address the important role played by implementation science. Implementation science, with its focus on determining the factors that support the sustainable implementation of proven innovative interventions into routine practice (Bauer & Kirchner, 2020). Including an implementation science perspective facilitates an insight into the barriers and facilitators to adopting evidence-based approaches and interventions.

Bauer and Kirchner (2020) highlight the way in which implementation science supports the narrowing of the research to practice gap, with researchers working closely with practitioners to increase the impact of innovative interventions (Bauer & Kirchner, 2020). Involving practitioners and school professionals at an early stage when designing recommendations for educational practice is crucial to creating interventions that may successfully be delivered on a large scale (Snowling et al., 2022). In the present study, obtaining feedback and engaging in professional dialogue with school leaders, teachers, and TAs in both the development phase and the delivery phase of the programme has been

crucial to understanding the barriers and facilitators to any future scale up of OLLI.

Although it was beyond the scope of this study to formally survey or interview school staff about their experience of delivering the OLLI programme, or to surveying or interviewing pupils about their experience of receiving OLLI, the project did include the collection of some qualitative feedback data. It was deemed important to capture some measures of how TAs, teachers and senior leaders in schools felt about the programme to understand the barriers and facilitators to the successful implementation of an intensive, targeted intervention such as OLLI. Pupil response to the programme was also important in determining any adaptations to its content and activities that may be required before disseminating the intervention to schools more widely.

Snowling et al. (2022) adapted and selected the relevant domains from the Consolidated Framework for Implementation research (CFIR) (Damschroder et al., 2009) to create an implementation framework that considers barriers and facilitators to successful implementation of language interventions. The qualitative data that was collected from participating schools regarding the implementation of the OLLI programme for this thesis will now be discussed through the lens of the four domains in the implementation framework created by Snowling and colleagues.

9.3.6 The quality and complexity of the intervention, its cost and school perception of the value of the programme

The design of the OLLI programme draws on evidence from earlier oral language programmes that RCTs have proven to be effective (Rogde et al., 2019; Clarke et al., 2010) in that there are three sessions per week, two for groups of children and one individual session for each child. All sessions are delivered by a trained teaching assistant. There was an estimated cost to the school of £3,600 (excluding on costs, or costs to school in addition to salary) to deploy a TA for 2.5 hours for 20 weeks to deliver the programme. OLLI manuals and high quality, full colour photocopyable resources were provided to schools free of charge.

Although informal discussions with schools leaders involved in the programme indicated that deploying trained TAs to deliver an evidence-based intervention designed to improve outcomes for children with oral language difficulties was a valuable way to spend school resources, concerns were raised by some schools about the challenges involved in staffing an intensive intervention such as OLLI, particularly post-COVID with unpredictable staff absence rates and at a time of intense pressure on school budgets. Commitment to the project, support for this doctoral research, and commitment to the relationships established between schools and the author of this study, were cited by some schools as the rationale for continuing participation in spite of the challenges. However,

some schools commented that delivering a programme such as OLLI that requires such intensive resourcing may be difficult in the future.

In relation to the quality of the OLLI programme, there was an overwhelmingly positive response from the TAs delivering it, and from senior leaders who had attended the OLLI training sessions, and had supported delivery, either directly or indirectly through monitoring, learning walks, and observation. School staff commented that they believed the manual and accompanying resources were excellent, comments echoed by external professionals who had observed sessions and reviewed the materials during school visits.

Some early concerns were expressed by a few schools that the vocabulary may be too challenging for the Year 4 children, both the taught vocabulary items and the other Tier 2 vocabulary that had been purposefully included in the passages and poems so that the children would encounter these words in context. These concerns about the level of challenge were also expressed by a few schools in relation to the idioms that were part of the figurative language focus in the sessions. However, these concerns were generally allayed as the programme progressed and the TAs saw that children were beginning to use the word learning strategies such as the clarification of unfamiliar words, and the revision and repetition of the meaning of idioms and their application in real life contexts. Furthermore, schools reported many instances where children were using these newly

learned words in the classroom outside the intervention sessions and around the school during the school day. The same pattern was observed with children's developing understanding and independent use of idiomatic phrases.

The high level of children's engagement with the passages and poems read aloud to them, and their active involvement in the vocabulary, figurative language and spoken narrative activities that was reported by the TAs was also reflected in the feedback provided by the children. The feedback provided by 40% of the 148 children who participated in OLLI generally rated their enjoyment of the intervention as high or very high. The children reported particularly enjoying the activities involving idioms and jokes. The experience of creating and developing their own narratives and then recording them on an iPad over a number of sessions was also rated highly by the children.

The feedback form for children that was included as a programme activity invited children to self-evaluate their progress, confidence and greatest achievement as a result of participating in the programme. Children reported higher levels of confidence in their own vocabulary knowledge, deriving the meaning of new words, and their understanding of idioms. The recall and use of new vocabulary learned in the intervention sessions was also rated highly in children's perception of their greatest

achievement, second only to their ability to create their own oral narratives.

Importantly, this perceived progress in knowledge and understanding of new taught vocabulary, and the ability to derive the meaning of untaught vocabulary items, also noted by the TAs delivering the programme, was reflected in the quantitative data that showed statistically significant improvements in bespoke taught and untaught vocabulary by the intervention children. The explicit teaching of Tier 2 vocabulary, although initially seen to be excessively challenging by some TAs, has led to clear improvements in children's knowledge and retention of the meanings of a range of multiple context use vocabulary. The specific focus in each session on the explicit teaching of 53 Tier 2 words during the programme and encountered in the context of the passages and poems, led to improved knowledge of these words. This is perhaps unsurprising, and in line with previous research that shows gains in learning words in context is effective (Nash & Snowling, 2006). Of greater significance in relation to generalisation and longer term improvements in children's word learning and derivation of word meaning strategies is the substantial improvements seen in children's ability to define words that were not directly taught in the programme. This suggests that it is crucial that children are exposed to a wide range of new, challenging, multiple context use vocabulary in the context of relevant, high quality fiction and non-fiction, both read aloud

and in written texts. This supports children to extend their spoken vocabulary, and to be motivated to learn new words.

9.3.7 School context - child needs and cultural factors

At the time of the delayed recruitment to the trial, schools were beginning to understand the significant impact that the extended school closures had had on children's language development (Bowyer-Crane et al., 2021; Bakopoulou, 2024). The negative influence of the pandemic-related lockdown on children's language and communication skills has been profound (Tracey et al., 2022; Powell et al., 2024). This has resulted in many schools reporting that promoting children's language and communication skills is a priority on their school development plans. Schools were already aware of the challenges they faced in early 2021 (less than a year after the first lockdown, and while this project was being developed). This resulted in many schools being receptive to engaging with research involving oral language interventions. In particular, research that aimed to ameliorate weakness associated with oral language and written expression. These are areas of routine focus in schools but took on a new urgency following the lockdowns.

While it should be noted that the immediate post-COVID context for schools in 2021 is highly specific and indeed unprecedented, the impact of the lockdowns and school closures will endure for many years as children affected in the formative early years of schooling, progress through the

primary school years. With the growing understanding too, acknowledged by the Labour party (Labour, 2023) of the critical role that oral language plays in psycho-social and academic development (Hjetland et al., 2020; vanAgt et al., 2011; Norbury et al., 2016) schools may continue to seek evidence-based interventions to support children in the upper primary school with weaknesses in oral language.

Furthermore, school engagement with oral language interventions, including Talking Time and the Nuffield Early language Intervention (NELI) has the potential to positively impact school awareness of the importance of embedding oral language across the curriculum and throughout primary school classrooms. This was reflected in a report by the deputy headteacher of one participating school, “The idea of supporting oral language development within a targeted group became a model we felt would benefit all children throughout the school.” Schools participating in the OLLI research have reported that participation in projects such as the OLLI evaluation have raised the profile of oral language in their schools and has laid the foundation for high quality oral language provision on which the staff seek to collaborate to build up and develop,

Taking part in this research project created a platform for us to build on. Teachers have combined this platform, together with their pedagogical knowledge and their familiarity with resources such as colourful semantics to design interventions to meet the needs of the children in classes from Nursery to Year 6.

The implementation framework for oral language interventions set out by Snowling et al. (2022) also considers the role of that school readiness plays

in the successful implementation of language interventions. The study set out in this thesis aimed to recruit sufficient numbers of Year 4 classes to reliably detect a statistically significant intervention effect, should there be one. The power analysis conducted indicated that 30 classes were required to detect intervention effect. However, upon reopening from the pandemic-enforced school closures, the study recruited 62 year 4 classes, over double the target number.

It was evident throughout the project (from recruitment, through screening and in-depth testing, to the delivery phase) that the 62 classes recruited were in different positions along the school readiness spectrum. In addition to the specific school contextual factors related to school leadership structures and availability of TAs to deliver OLLI, the unstable and unpredictable school sickness and staffing crisis that persisted for many months after the re-opening of schools post-pandemic, inevitably influenced school readiness manage the additional demands needed to participate fully in the intervention. Pandemic-related disruption affected the extent to which schools were ready and able to engage in the time-consuming TA administered screening (approximately 15 minutes per child, totalling 7.5 hours per class), to obtain parental permissions in a timely manner, organise dates and quiet rooms for the administration by research assistants of the in-depth testing. Arranging for TAs to attend the compulsory OLLI training and to be ready to begin the intervention at the scheduled time so that all schools commenced the programme

simultaneously also presented a challenge for some schools. Throughout this time, it was essential that the author maintained close contact and a supportive relationship with schools. In a few cases this involved the photocopying and organisation of some programme resources and being available by email or phone immediately after the first sessions were delivered to provide encouragement, support and guidance.

Between recruitment and the post-intervention data collection period, a number of SENCOs left their school or were signed off on long-term sickness. The SENCO was the main point of contact for schools, so in the absence of the SENCO, new routes to communication and relationships had to be developed between the author and other school professionals, such as teachers, deputy headteachers, and headteachers. This inevitably presented challenges to the smooth running of the trial and affected the dosage of the intervention in some schools that had to pause or cease intervention delivery before completing the full 20 weeks of the programme. Although challenging, and disappointing in its impact on the completion of the programme in some schools, it is also perceived as a strength in this study. School life can be unpredictable, and school leaders are consistently dealing with unexpected challenges. So, in this regard, the school situations encountered in this study create an ecologically realistic picture, irrespective of the post-covid context. This strengthens the findings of the study and suggests that the gains seen in children's language skills and expressive writing may actually be an underestimation

of the improvements that would be possible if the full 20-weeks of the programme had been delivered in all participating schools.

A key aim of intervention research in education is to develop robust, evidence-based interventions that produce statistically significant and educationally meaningful improvements in pupil outcomes. But these interventions must also be practicable in real school contexts. The staffing issues and disruption in schools encountered during the RCT, though challenging, represent a realistic picture of the dynamic nature of school life. Therefore, the positive outcomes seen in a trial that took place in challenging times suggest that they can be generalised to a range of primary school settings and should be replicable in primary schools across England.

Future evaluations of OLLI should consider not only the language and expressive writing outcomes of participating in the programme but should, as Gorard et al. (2017) suggest, include a process evaluation that can take account of the quality of the resources and any barriers to implementation. Gorard and colleagues also note the value in collecting more in-depth data on what the control group was doing while the treatment group was receiving the intervention.

9.3.8 Individual characteristics: TAs

Data on the individual characteristics of TAs delivering OLLI were not collected, as this was beyond the scope of the study. However, it was evident from informal conversations with TAs during the implementation monitoring process that a large number of them were new to or had limited experience in the delivery of structured, targeted language and literacy interventions. There was a highly positive response to the training received prior to intervention delivery and to the ongoing support provided throughout programme delivery. School leaders highlighted the impact of the training and engagement with OLLI on TA's professional knowledge and skills in supporting children's oral language. The time taken to deliver sessions at the beginning was reported by a few TAs to exceed the 30-minute allocated time, but this generally resolved as the programme progressed.

9.3.9 Process

The final strand of Snowling et al.'s (2022) implementation framework focuses on the process of implementing language interventions and includes planning, engagement, reflection and evaluation. During the process of planning and writing OLLI, the author of this study took account of feedback from a range of professionals involved in language and literacy teaching and assessment and also included a parent and child perspective. The fiction and non-fiction passages, and poems, were deemed to be

appropriate for the target age range, as were the accompanying resources. Feedback on the taught and untaught vocabulary items used in the materials, suggested that the level of challenge may have been too high for children in Year 4, especially children with language comprehension difficulties. However, no changes were made to this aspect of the programme in response. The author was confident that the extensive analysis of Tier 2 vocabulary lists from the UK and the US had led to appropriate and evidence-based word selection.

Interestingly, similar feedback was received from some TAs at the start of the programme. However, as the programme progressed schools highlighted children's positive engagement with the learning of the vocabulary and good rates of recall of the meaning of these words, and their use in children's spoken language. Vocabulary learning was highlighted as an area of both enjoyment and achievement in the children's feedback. Furthermore, the statistically significant improvements seen not only in the bespoke taught vocabulary, but also in the vocabulary that the children encountered incidentally while reading the passages, and which were not directly taught.

TAs reported a high level of engagement with the programme and with the training that improved their understanding of oral language development. The emerging impact of COVID-19 lockdowns on children's language and communication skills may have heightened school interest in participating

in the OLLI trial as they sought support to children's language development and to address the gaps created by school closures. However, oral language remains a high priority on the school development plan of many schools, so it is likely that interest in interventions such as OLLI will be maintained. Furthermore, the then opposition Labour party (Labour, 2023) announced that should it be elected to govern the country, it would make a strong commitment to ensuring that all children develop a firm foundation in language and communication skills. This commitment was matched with an undertaking to fund the implementation of evidence-based language interventions in schools (Labour, 2023).

Reflection and evaluation of the process of the implementation of OLLI has highlighted three key areas for improvement in future developments of the OLLI programme and evaluations of a larger-scale roll-out. Firstly, it is crucial that implementation science is used to inform a robust process evaluation alongside any future trials. Secondly, improvements to OLLI should include building a comprehensive model of ongoing professional development for the TAs delivering the programme. This should draw on the evidence of effective CPD seen in the NELI programme (West et al., 2024) and Talking Time (Dockrell et al., 2023). Inextricably linked to this is the third area for development, the revision of the programme manual. A fully scripted manual was deemed important to maintain treatment fidelity. However, Dockrell et al. (2023) have shown the benefits of a more flexible manual supported by high quality, ongoing CPD and mentoring

support. Ongoing, evidence-informed CPD for TAs would afford the opportunity for a more flexible manual to be developed in line with the approach used by Dockrell et al. (2023).

9.3.10 Relevance and implications for policy and practice

In July 2024 the newly elected Labour government launched a review of the National Curriculum and assessment (DfE, 2024). This presents an ideal opportunity for the current English curriculum and programmes of study to broaden their narrow focus in Key Stage 1. To move beyond a heavily phonics-based approach to literacy teaching, to include opportunities to develop linguistic comprehension. Bringing a focus on linguistic comprehension into partnership with a focus on decoding will develop skilled reading (Hoover & Gough, 1986). This combination needs to hold a more elevated position within the curriculum in throughout the primary school years. The pedagogical knowledge required for teachers to understand and support the development of oral language skills through evidence-based high quality teaching and intervention must be given greater priority in the Early Career Framework and across all of the teacher professional qualifications. It should form a 'golden thread' of pedagogy from the early stages of teaching through to the strategic leadership of oral language provision by senior leaders in schools.

If academic and psycho-social outcomes are to improve for children, young people and adults in the future, ongoing professional development for

both teachers and TAs focusing on high quality oral language practice and provision must be made available to staff in all primary schools. This is particularly important for schools in areas of social disadvantage and areas with high prevalence of pupils with English as an additional language. In their curriculum reforms, the government have pledged that no child will be left behind. Further stating that there will be a particular concern for equitable provision, and for ensuring that children with SEN or disability, vulnerability and those from socio-economically deprived backgrounds will have positive outcomes. This can only be achieved in relation to the focus of this thesis if the research demonstrating the impact of oral language on long-term outcomes is heard and understood and if the evidence from robustly evaluated teaching and intervention programmes finds a route into the curriculum and into ongoing professional development of all teachers and support staff.

The extent to which oral language underpins academic learning and psycho-social development should also be taken account of in the current assessment reforms that accompany the curriculum reforms. Revised primary school assessments should recognise the importance and value of assessing not only reading and writing, but also children's oral language skills. In this way, with regular annual assessment of children's oral language throughout the primary school years using robust screening instruments, children's language weaknesses can be identified early, and

appropriate evidence-based interventions can be implemented in line with the graduated response (DfE/DoH, 2105).

9.4 Impact of COVID-19 on the trial

The COVID-19 pandemic had a significant effect on the RCT evaluating the effectiveness of the OLLI programme. Firstly, the start of the trial was delayed due to the closure of schools in March 2020. Recruitment of schools to the trial could not commence until schools had reopened and there was a reduction in staff and pupil COVID-related absences.

The impact of COVID-19 on school staff absence rates reduced the number of Year 4 classes who had consented to participate in the trial from 62 classes to 50 classes by the start of the delivery of the programme. Prior to screening, four classes in two schools advised that they would have to withdraw from the trial due to pressure on staff and resources leaving insufficient support staff to undertake the language screening. After in-depth testing, but prior to the commencement of intervention delivery, a further 8 classes in 5 schools withdrew from the trial advising that they had insufficient TA availability.

COVID-19 continued to interfere with the smooth running of the trial throughout the pupil screening, testing, and delivery phases of the OLLI programme. The identification of the 6 children in each Year 4 class who were then assigned to the intervention and waiting list control arms of the

trial required full classes of Year 4 children to be screened, subject to parent or carer consent, by a teaching assistant using the LanguageScreen app. Each LanguageScreen assessment takes approximately 15 minutes per child. High levels of staff absence during the screening period (add in dates from method) led to the completion of screening and subsequent identification of the children taking longer than planned. Pupil absence during this period also prolonged the screening phase. Following the screening, each of the 6 children identified with the lowest language levels in each Year 4 class was further tested on robust measures of oral language. Higher than usual levels of pupil absence during the in-depth testing phase also extended the testing phase. The 15-minute expressive writing task and 2-minute maths task were administered by TAs and therefore there was more flexibility with the timing of this around pupil and staff absence.

When intervention delivery began in January 2021, staff absences continued to affect schools and senior leaders were required to redeploy TAs to cover teaching and intervention leading to a delayed start to OLLI in some schools, and interruptions in delivery in others. This was a significant factor in determining the final dosage of the intervention and led to some schools not completing the full 20-week programme.

9.5 Staff training in oral language and the OLLI programme

Research has shown that the most effective models of continuing professional development (CPD) in schools are those that are ongoing and support the development of educator knowledge and application of evidence based practices in the classroom. Professional development (PD) for school staff can be effective and can produce a meaningful impact on instructional practices in the classroom (Carroll et al., 2012). However, Carroll et al. (2012) draw attention to the limited impact on classroom practice that results from isolated, one-off professional development activities.

The Education Endowment Foundation (EEF) provide a series of recommendations for the design and implementation of effective professional development (EEF, 2021). Of particular relevance to the present study, the EEF provide recommendations on four key mechanisms that have been shown to underpin effective CPD. These relate to building knowledge, motivating staff, developing teaching techniques, and embedding the elements of learning gained through professional development in classroom practice. The EEF highlight the importance of practical peer support in designing professional development, including the provision of an expert coach to give peer support and guidance.

This model has been used effectively in the professional development in schools for oral language interventions (Dockrell et al., 2023; Snowling et al., 2022; West et al., 2021). In reviewing three RCTs evaluating the effectiveness of oral language interventions (Snowling et al., 2022), the knowledge and skills of those delivering the intervention was shown to be a crucial factor in successful implementation. Snowling et al. (2022) argue that the acquisition of this knowledge and skills requires rigorous professional development that is further strengthened by ongoing support for practitioners. This form of initial training in the development of oral language and focus on the specific intervention and delivery has been shown to be effective (West et al., 2021). West et al. ensured that the training provided for the TAs delivering the Nuffield Early Language Intervention (NELI) was of high quality by utilising experienced specialist teachers, and speech and language therapists to provide the initial two-day training and follow up half-day training midway through the intervention delivery phase. The specialist teachers who provided the initial NELI training also provided ongoing support for TAs via email, webinars and through a Facebook group designed to provide peer mentoring.

This form of professional development was also used effectively in the recent evaluation of an updated Talking Time early years language intervention (Dockrell et al., 2023). The mentoring provided for nursery staff in the Talking Time evaluation was highlighted by practitioners as being a valuable element of the support provided. The initial intervention

training provided for staff delivering the intervention was then combined with instructional coaching delivered both as in-person training and through the medium of video. This model of PD enabled staff to receive explicit teaching in effective strategies for supporting language learning, together with opportunities for staff to rehearse the application of these strategies in practice. The techniques of modelling, observation, and feedback, reflection and motivation, seen in the EEF recommendations for professional development formed core elements of the framework adopted by Dockrell et al. (2023).

A further benefit of this form of ongoing, supportive PD model for language interventions is that the knowledge and skills in supporting oral language development in the classroom and through intervention delivery facilitates a more flexible and adaptable manualisation approach without compromising fidelity to the principles underpinning the intervention.

The future development of OLLI and similar oral language interventions should draw on the effective PD models that are integral to the interventions evaluated by Dockrell et al. (2023) and West et al. (2021). In the evaluation of the effectiveness of OLLI, training for school staff was provided through required attendance at two half-day online training sessions. Prior to commencing intervention delivery, it was compulsory for the TA delivering the intervention and at least one senior leader from each school to attend the training. The training consisted of half a day training

on the development oral language skills and how to support this development, and half a day training on the OLLI programme and how it should be delivered. The importance of maintaining fidelity and avoiding contamination between intervention and waiting list control children was also addressed in the training.

However, due to funding constraints and the fact that the sole responsibility for every aspect of the planning, delivery, and oversight of the intervention lay with the author, it was not possible to adopt the PD model shown to be effective in other oral language intervention studies. Attempts to mitigate the effects of not providing more ongoing PD for participating schools were addressed by providing 3-4 weekly check-ins with all participating schools and offering additional support on request to all schools via schools visits, observations with immediate feedback, and modelling of intervention sessions. Regular email and phone contact was provided for all schools prior to the commencement of intervention delivery and throughout the delivery phase.

The funding constraints that shaped the professional development offer for participating schools also had implications for the manualisation of OLLI. Fidelity to the programme was of paramount importance and without a comprehensive, ongoing model of professional development, mentoring and peer support, it was believed that allowing any flexibility in manualisation and adaptation in delivery and choice of activities, as found

to be effective in Dockrell et al. (2023), risked reducing fidelity and the reliability of the intervention outcomes. Future developments to the OLLI programme could include a comprehensive online training programme for schools together with ongoing mentoring and support, including peer to peer support.. This would facilitate the development of a more flexible OLLI manual without compromising fidelity to the programme.

In developing the programme for use in schools on a wider scale, the provision of an ongoing training programme (look up West et al, 2024) would in turn have implications for the manualisation of OLLI. A more comprehensive training programme for TAs that includes progression through a suite of self-directed learning.

9.6 Limitations

A large body of research has demonstrated that oral language underpins the development of reading and writing skills (Dockrell et al., 2019; Hjetland et al., 2019; Nation et al., 2004). Furthermore, reading and writing skills do not develop independently of each other, but instead are inter-related, with reading supporting writing and writing aiding the development of reading accuracy and reading comprehension (Shanahan, 2006). As a result of this inter-relationship, it is argued that instructional practices should take account of this and take a more integrated approach to literacy teaching rather than teaching reading and writing as discrete skills (Graham, 2020).

The findings of the present study clearly demonstrate that participation in the OLLI programme leads to meaningful improvements in children's expressive language, vocabulary knowledge and application of strategies to derive the meaning of unknown words. OLLI has also produced improvements in children's expressive writing. From an integrated literacy development perspective, then, a key limitation of this study is that due to funding constraints, measures of reading accuracy and comprehension were not taken. Clarke et al. (2010) provided clear evidence that oral language interventions can produce meaningful improvements in reading comprehension, improvements that were maintained at 11-month follow up. This would suggest that OLLI may produce gains in reading comprehension as well. Given that vocabulary knowledge is a key predictor of good reading comprehension and that OLLI improved vocabulary knowledge, this seems plausible. Future evaluations of OLLI should include assessment of reading accuracy and reading comprehension, including at 12-month follow up.

A further limitation is that due to this being an unfunded project, it was not possible to take follow-up measures of oral language and expressive writing to ascertain if the gains were maintained. The OLLI programme is designed to improve language and expressive writing in Year 4 children, prior to them entering the final years of primary schooling and preparing to transition to secondary school. It will be important, therefore, to obtain longer-term follow-up measures in any future evaluations of OLLI to

evaluate the extent to which improvements in literacy outcomes are maintained by the end of primary school and into secondary school. Donolato et al. (2023) highlight the importance of follow-up testing in oral language intervention research and the limited number of studies that include follow-up measures.

Obtaining measures of reading accuracy and reading comprehension at both immediate post-test and at 12-month follow-up, together with taking additional follow-up oral language and expressive writing measures at 12-months will offer an opportunity to strengthen the evidence about the effects of OLLI. Additionally, as intensive interventions such as OLLI require schools to commit significant support staff resources to attending training and to intervention delivery, evidence of the longer term effects of OLLI will help to inform the decisions taken by schools when considering that commitment.

The passages read aloud to children throughout the OLLI programme included a range of fiction and non-fiction. The pre-intervention and post-intervention writing measure required children to write for 15 minutes on the topic of their ideal school trip. Therefore, a limitation of this study was that the improvements seen in children's expressive writing were based on their performance in a specific writing task. Future studies could seek to capture children's expressive writing across a selection of written pieces, including story re-telling, story writing on a child's own chosen topic, and

non-fiction pieces. Examining samples of children's independent writing from regular classroom literacy lessons would afford the opportunity to evaluate whether improvements in expressive writing have been generalised and are transferring to classroom performance.

As with any study, there were a number of areas in this project that could have been done differently and where improvements can be made should it be replicated in future. Due to the large scale of the project and the fact that implementation was overseen by a single researcher with limited resources, it was not possible to gather systematic data on dosage. That is, was the intervention delivered with fidelity to the programme outline, with three sessions being held per week over a total of 20 weeks. The information collected on intervention dose was gathered by asking schools to complete brief session records for each session completed using a session record template included with the programme resources. The importance of keeping brief notes about the sessions, including which children were present at each session and the dates and sequence of those sessions, was emphasised in the pre-intervention training and during school visits and phone calls. These records were reviewed during school visits and in phone discussions across the life span of the programme.

Schools were advised to continue with the sequence of sessions even if they were unable to conduct all three timetabled sessions in the relevant

allocated week, and not to skip sessions. This was to ensure that the cumulative nature of programme was not compromised.

At the point of post-test, all participating classes were asked during post-test visits, or by phone or email communication, to confirm the total number of weeks of the OLLI programme that had been completed. It was explained to schools that one week was defined as a sequence of three consecutive sessions in the programme that centred around a particular set of oral narratives or poems. 40% of classes reported completing 10 weeks or fewer, 30% reported completing between 13 and 16 weeks, and 30% reported completing between 16 and 20 weeks of the programme. The reasons given by schools for not completing the full 20 weeks of the programme related to ongoing staffing shortages affecting deployment of TAs to an intensive intervention.

Therefore, the average dose of 13.64 weeks across the 50 classrooms could be more accurately described as 41 of 60 sessions (68%). Although it is a limitation of the study not to have the precise information on intervention dose, the fact that an average of only 68% of sessions were reported to have been delivered, the improvements in oral language and expressive writing skills as a result of participating in the OLLI programme are likely to have been an underestimation, if one assumes that more progress would have been made by children who had completed all 60 sessions. Future

evaluations of OLLI should seek to capture systematic data on dose via an online reporting system completed weekly by participating schools.

Feedback from school staff about the OLLI programme was overwhelmingly positive. However, there were limitations to the method used to collect feedback from TAs and school staff which may have led to a positive bias in the perspectives shared with the author of this study.

Feedback from school staff was collected informally during face to face school monitoring visits and observations, and by emails and phone calls with the author of this study. TAs and school staff may have felt uncomfortable or unable to share any negative feedback which may have led to the over-reporting of positive comments about OLLI. Future evaluations of OLLI could seek to collect feedback in a more objective and systematic way using an anonymised online form that would be analysed by a research assistant. This would provide a safe space for honest feedback to inform programme improvements and would reduce the risk of bias.

A further limitation of this study lies in the method used to select the participants for the intervention. The use of LanguageScreen to screen all the children in participating classrooms was deemed to be the most appropriate method of identifying the children with the lowest levels of language attainment in each classroom and thus who may have benefited from the OLLI programme. However, because this is a relative measure

there was variation, pre-intervention, in the absolute language attainment of the children involved in the study. In any replication of the study, analyses by absolute attainment on the language assessment prior to the intervention would provide an insight into any differential benefit of the OLLI programme.

This study has clearly demonstrated that the OLLI programme is effective for children with English as an additional language (EAL), as 40% of the children were registered as EAL. However, the analysis did not separate out the children with EAL, nor did it compare the gains made by EAL children relative to those without EAL. The information provided by schools did not include the stage of English language learning for individual children.

Indeed, these data have not been routinely collected by schools since the abandonment of the national requirement to assess English language proficiency in 2016. We know that English proficiency, not merely EAL status, is a strong predictor of general educational achievement (Lindorff, Strand & Au, 2025). As such, any future replication should assess English proficiency of EAL learners at baseline to help assess any differential effects of the intervention for EAL learners at different stages of English proficiency, and how this relates to the effects for English L1 learners.

Additionally, although deprivation indexes for individual schools were collected, with the average deprivation score for the overall sample of participating schools broadly in line with the national average, individual

pupil data related to social disadvantage was not collected. Therefore it is not possible to evaluate whether OLLI was more or less effective for children from disadvantaged backgrounds when compared to those from more privileged backgrounds. Future evaluations should seek to capture information regarding social disadvantage at the pupil level.

A significant body of evidence (Hart & Risley, 1995; Lareau, 2011; Hoff, 2013; Dietrichson et al., 2017) has demonstrated the impact of the home environment on English oral language development and vocabulary growth. The OLLI programme was a fully school-based intervention that did not seek to intervene in the home environment or provide support for parents in developing language skills in the home. Future developments to the OLLI programme could include a home component. This could be comprised of workshops for parents and carers about how to support oral language development in the home and weekly newsletters about the topics, activities and vocabulary covered in the sessions. Children could be provided with copies of the fiction and non-fiction passages and poems to share with parents, carers and extended family in the home. This may support the consolidation and generalisation of the knowledge and skills acquired in the school-based sessions. Future evaluations of the OLLI programme could then examine whether the inclusion of a home component of OLLI increases the immediate gains in oral language and expressive writing skills, with follow-up testing to evaluate whether any gains are maintained.

9.7 Conclusion

The study presented in this thesis has produced robust evidence that OLLI improves the language and expressive writing skills of children in the upper primary school years, including children with English as an additional language. Furthermore, it has produced novel findings that multi-component oral language interventions can improve children's expressive writing. The findings of this research can support and inform not only future oral language intervention research but can shape literacy curriculum development and can support improving pedagogical practices in the primary classroom. OLLI has been shown to have the potential to reduce educational inequality, and in doing so, could lead to improved long-term outcomes for children and young people with language difficulties.

10 Conclusion

The randomised controlled trial conducted in 50 Year 4 classrooms in England found that the Oral Language for Literacy (OLLI) programme produced significant improvements in children's oral language skills and

expressive writing. Significant improvements were seen not only in children's understanding of the vocabulary that was explicitly taught in the programme, but also in words that children heard in the passages and poems but were not directly taught.

This thesis presents robust evidence that oral language interventions such as OLLI can ameliorate the language weaknesses of children in the upper years of primary school education. Poor grammatical skills inhibit the organisation of children's spoken language and the grammatical complexity of the phrases and sentences that they produce. This is reflected in the written production of children with weak language skills who have difficulty with organisation of ideas and the lexical quality of written expression (Dockrell et al., 2012).

This thesis provides strong evidence that interventions focused on the skills needed for good linguistic expression and the development of coherent oral narrative can in turn improve the quality of children's writing. The findings of Clarke et al. (2010) showed that children's reading comprehension could be improved by oral language interventions. This evaluation of OLLI adds to these findings and strengthens the evidence that oral language underpins both the reading and writing domains.

The findings of this study that children's ability to derive the meaning of untaught vocabulary suggest that exposure to rich and varied multiple context vocabulary alongside carefully modelled and scaffolded strategy

instruction is crucial for vocabulary growth. Learning in a social context, in small groups with an adult trained in oral language intervention delivery provides multiple opportunities for vocabulary exploration and productive peer learning.

An important finding from the qualitative data gathered from feedback from TAs and senior leaders is the way in which children are generalising their knowledge of new vocabulary and new understanding of figurative language to the classroom and school contexts. Multiple examples were provided by school staff of children using words and idiomatic phrases they had learned in the classroom and around the school. Of note too, the feedback provided by the children showed that they were aware of their increased vocabulary knowledge and their growing understanding of figurative language. The feedback from TAs and children also indicated a high level of engagement with vocabulary and figurative language activities, demonstrating the importance of an engaging activities with high quality images and resources to stimulate learning and motivation.

This thesis highlights the importance of identifying children's language difficulties using robust, educationally practicable screening instruments that can be administered quickly and reliably by teaching assistants during the school day. The COVID-19 pandemic has increased the prevalence of language difficulties in primary school children, and it is therefore crucial that ongoing screening is available to identify changing language profiles.

With appropriate evidence-based ongoing professional development for educators and access to robustly evaluated language interventions, a clear opportunity exists to improve children's language and writing skills and their long-term outcomes.

The sample of schools and participants in this study is broadly representative of schools in England in terms of social deprivation and number of pupils with English as an additional language. The robust findings from the RCT evaluating the effectiveness of OLLI suggest that the programme can be delivered at scale, and that it has the potential to reduce educational inequality.

This thesis makes an original and much needed contribution to the field of oral language intervention research. To date, limited research has evaluated the effectiveness of multiple component oral language interventions for children in the upper primary school years, in particular, research using pre-registered randomised controlled trials such as the trial presented in this thesis. The collaboration between researchers and schools to develop and evaluate interventions to support older children with language weaknesses must become a key priority for the education community.

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Appendix A

Writing Assessment Measure - Marking Criteria

Sentence Structure	Circle Score
Secures control of complex sentences. Understands how clauses can be manipulated for effect. Able to use conditional and passive voice e.g. 'having watched him eat a dog biscuit, she felt sick'.	4
Beginning to write extended sentences including subordinators e.g. 'if', 'so', 'while', 'when', 'after'. The basic grammatical structure of sentences usually correct e.g. usually consistent and correct use of tenses and nouns and verbs agree.	3
Beginning to use other conjunctions to create compound sentences e.g. 'because', 'but', 'so', 'then' and may be using multiple clauses i.e mixing up tenses.	2
Writes simple sentences which include conjunction 'and'.	1
Writes simple phrases which are not connected.	0

Vocabulary	Circle Score
Demonstrates use of well-chosen vivid and powerful vocabulary to create effect e.g. verbs, adjectives, adverbs.	4
Varied use of adjectives, verbs and specific nouns e.g. 'delicious' for 'nice', 'sauntered' for 'went', 'poodle' for 'dog'.	3
Some selection of interesting and varied verbs e.g. 'jumped', 'compare', 'guess'.	2
Uses simple vocabulary, appropriate to content. Writing is composed of simple nouns and verbs e.g. 'look', 'went', 'go', 'play', 'see'.	1
Limited vocabulary which is inappropriate to content.	0

Organisation and Overall Structure	Circle Score
Paragraphs are well organised, based on themes and provides a cohesive text for the reader e.g. paragraphs, subheadings, locally organised events.	4
Uses paragraphs to organise writing, showing an identifiable structure. Maybe short sentences.	3
Themes are expanded upon and linked together in a series of sentences.	2
Communicates meaning but may 'flit' from idea to idea and any themes that are expanded are done so in one sentence.	1
No evidence of organisation or clear structure.	0

Ideas	Circle Score
Ideas are creative and interesting in a way that engages the reader. Uses a range of strategies and techniques such as asides, comment, observation, anticipation, suspense and tension.	4
Ideas are imaginative and varied evidence of descriptive detail about characters, settings, feelings, emotions and actions.	3
Ideas are developed to by adding detail e.g. is beginning to provide additional information or decription beyond a simple list.	2
Produces short sections of ideas which may be repetitive and limited in nature.	1
No evidence of idea development.	0

Total Score	
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Total Number of Words	
Total Number of Different Words	

Appendix B

Information and consent letters.

University of Oxford
Department of Education,
15 Norham Gardens,
Oxford, OX2 6PY
Professor Charles Hulme
Principal Investigator
Direct Line: 01865 284096 | Email: charles.hulme@education.ox.ac.uk
Principal Researcher: Rosanne Esposito
Phone: 01865 274024 | Email: rosanne.esposito@education.ox.ac.uk



Dear Headteacher

I am writing to enquire about conducting some research in your school starting in the summer term 2021. I am a doctoral research student at Oxford University, supervised by Professor Charles Hulme. Our project will investigate whether an Oral Language Intervention can improve the language and reading comprehension skills of pupils in Year 4.

By participating in the research, your school will be contributing to a project that will develop our understanding of the effective components of oral language teaching for pupils in lower Key Stage 2. The research will contribute towards developing ways of improving attainment for similar students in the future.

The commitment from the school would be for a teacher or teaching assistant to assess all pupils in one Year 4 class or two parallel classes in the case of two form entry schools using a 10-minute app-based language screening assessment provided by the research team. Then a research assistant will undertake baseline language assessments with the six children in each Year 4 class with the lowest language scores. Children will be assigned to an intervention or waiting control group. We would provide training for teaching assistants in the delivery of the intervention. The teaching assistants will then deliver the intervention for 20 weeks starting in January 2022 for the intervention group. The waiting control group will receive the programme starting in September 2022. As part of the intervention, children will be audio-recorded creating spoken stories.

Oxford University has strict ethical procedures on conducting research with teachers and young people, consistent with current British Educational Research Association guidelines. Before beginning the research, I would inform parents and guardians about the research and offer the pupils, parents and guardians the opportunity to refuse to participate. Throughout the research pupils, parents and guardians will be able to withdraw from the study at any time.

All participants, including pupils, teachers, teaching assistants and the schools, would be made anonymous in all research reports. The data collected would be kept strictly confidential, available only to my supervisor and myself, and not used other than specified without the further consent of all involved being obtained. All data and audio recordings would be destroyed at the end of the research project and kept in locked conditions until then. I have an enhanced DBS (formerly known as CRB). I have enclosed copies of the leaflets for parents and students with this letter.

Rosanne Esposito
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Professor Charles Hulme
Principal Investigator
Direct Line: 01865 284096 | Email: charles.hulme@education.ox.ac.uk
Principal Researcher: Rosanne Esposito
Phone: 01865 274024 | Email: rosanne.esposito@education.ox.ac.uk



If you would like to take part in the study, or need more information about what is involved, please contact me. Whether or not you feel it would be appropriate for your school to participate, I would be grateful if you would complete the attached pro-forma and return this to me by email, rosanne.esposito@education.ox.ac.uk

Thank you for your time and attention. I look forward to hearing from you.

Yours sincerely,

A handwritten signature in cursive script that reads 'Rosanne Esposito'. The signature is written in black ink and is positioned above a thin horizontal line.

Rosanne Esposito
rosanne.esposito@education.ox.ac.uk
Tel: 01865 284096

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An Oral Language Intervention Programme for Year 4 Children

PARTICIPANT INFORMATION SHEET FOR PARENTS / GUARDIANS

Ethics Approval Reference: ED-CIA-19-090

Your child's school has agreed to take part in a study assessing the effectiveness of an Oral Language Intervention designed to improve children's language and reading comprehension skills. The head teacher of your school has agreed that all pupils in your child's class can take part. We are sure that the children will enjoy participating in this study. Below we tell you more about it, so that you can understand why it is being done and what it will involve.

What are we trying to find out?

The Oral Language Intervention is a structured oral language programme for improving the language and reading comprehension skills of children in Year 4 who have difficulties with reading comprehension. The aim of this study is to measure the effectiveness of this programme.

What will happen if my child takes part?

Most children will only take part in the first stage of the study, during which we will measure children's oral language skills before the intervention programme starts. In the summer term 2021 all children will complete a 10 minute, child-friendly oral language assessment with their teacher or a teaching assistant. Six children in each class will then go on to complete a small number of additional age-appropriate standardised tests of oral language. These individual sessions will take approximately one hour and the test activities are fun to do. Children taking part in these sessions will complete a similar session at the end of the project, in the spring/summer term 2022.

Following the initial assessments in the summer term 2021, six children in each class will be selected to receive the Oral Language Intervention programme. These children will take part in a 20-week intervention which involves two 30-minute group sessions and one individual 30-minute sessions a week delivered by teaching assistants. The first group start in September 2021 and the second in the summer term 2022. The sessions will focus on developing vocabulary and spoken narrative skills and will include inferencing activities and the use of metacognitive and reciprocal reading strategies. The sessions will be run during class time by a teaching assistant from your child's class. As part of the intervention, your child's teaching assistant will make audio recordings of your child creating spoken stories. This will be a fun activity for your child and will allow us to measure your child's progress.

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Oxford, OX2 6PY
Phone: 01865 284096 | Email: rosanne.esposito@education.ox.ac.uk

What happens to the results of the study?

Results for each child are kept strictly confidential. Only a code number will be used to identify children, and any written records will be information kept in a locked filing cabinet in the University. Results from your child will be combined with the results from other children for statistical treatment and not used in any way that would identify your child.

We aim to use the results to measure the success of the intervention in improving the language and reading comprehension skills of the children who take part. Research data (not sensitive/personal data) will be kept securely for a minimum of three years according to University Policy.

Statement of any benefits or risk

Taking part in this research will be of no risk to your child. The research will be of benefit to teaching staff in terms of their professional development and to future classes of children.

Who is conducting this research?

The research project will be conducted by Rosanne Esposito, doctoral student supervised by Professor Charles Hulme, Oxford University. This study has received ethical clearance from the University of Oxford's Central University Research Ethics Committee, ED-CIA-19-090.

What if there is a problem?

If you have a concern about any aspect of this project, please speak to the Rosanne Esposito on 01865 284096 who will do her best to answer your query. Rosanne should acknowledge your concern within 10 working days and give you an indication of how she intends to deal with it. If you remain unhappy or wish to make a formal complaint, please contact the chair of the Research Ethics Committee at the University of Oxford (Chair, [Social Sciences and Humanities/Medical Sciences] Inter-Divisional Research Ethics Committee; Email: ethics@socsci.ox.ac.uk/ethics@medsci.ox.ac.uk; Address: Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD). The chair will seek to resolve the matter promptly.

What should I do next?

Please fill in the enclosed form and return it to your child's class teacher if you would like your child to take part in this study. You are free to withdraw your child at any time, without penalty and without giving a reason by notifying the researcher. If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

Rosanne Esposito,
Email: rosanne.esposito@education.ox.ac.uk
Phone: 01865 284096

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OPT OUT FORM

If you **DO NOT** want your child to participate in the research, The Oral Language Intervention Study, please fill out the form below and return it to the school by 05/07/21. If we do not receive an opt-out form from you by this date, your child may be invited to take part in this study, as described in the accompanying information sheet.

I, the undersigned, hereby DO NOT give permission for my child to take part in the study entitled The Oral Language Intervention Study.

Name of child: _____

Name of parent/guardian: _____

Name of School: _____

Signature: _____ Date: _____

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PARENT/GUARDIAN CONSENT FORM

CUREC Approval Reference: ED-CIA-19-090

Oral Language Intervention

- Your child's school has agreed to take part in a study run by Oxford University that aims to measure the effectiveness of an Oral Language Intervention in developing children's language and reading comprehension skills. If your child takes part, a research assistant will undertake some activities with your child. Your child will then receive the 20 week oral language intervention. At the end of the intervention, a research assistant will repeat the activities with your child that were undertaken before the intervention.
- **If you are happy for your child to take part, please fill in the form below and return it to your child's class teacher as soon as possible.**
- To find out more about the study, please read the attached information sheet. You can also email me at rosanne.esposito@education.ox.ac.uk or call me on 01865 284096 if you have any questions.

Name of child: _____
 Forename Surname

Name of school: _____

I have read and understood the details of the above study and have had the opportunity to ask questions and discuss the study with others. I have received satisfactory answers to my questions.	<input type="checkbox"/>
I understand how to raise a concern or make a complaint.	<input type="checkbox"/>
I agree for my child to undertake standardised assessments of oral language.	<input type="checkbox"/>

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 Principal Researcher: Rosanne Esposito
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I understand that there will be three testing time points; before the intervention, immediately after the intervention and six months following the intervention.	<input type="checkbox"/>
I agree for my child to participate in a 20-week Oral Language intervention.	<input type="checkbox"/>
I agree for my child to be audio recorded.	<input type="checkbox"/>
I understand how audio recordings will be used in research outputs.	<input type="checkbox"/>
I understand that the project has received ethics clearance through the University of Oxford's ethical approval process for research involving human participants, and I understand who will have access to the data, how it will be stored and what will happen to the data at the end of the study.	<input type="checkbox"/>
I understand that participation is voluntary and that my child and I are free to withdraw at any time, without giving any reason and without my child's education being affected in any way.	<input type="checkbox"/>

I give permission for my child to take part in the above study.

Name of parent/guardian: _____

Signature: _____ **Date:** _____

Name of researcher: _____

Signature: _____ **Date:** _____

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Oral Language Intervention

INFORMATION SHEET FOR CHILDREN AGED 6 TO 10

To be shown and read by parent/carer if required

Ethics Approval Reference: ED-CIA-19-090

My name is Rosanne Esposito and I am studying at the University of Oxford. I am doing some research and would like you to join in.

Research is a way we try to find out the answers to questions. We want to see whether our intervention can help to improve children's reading comprehension.

You can talk to your family, friends, or the researchers if you want to before you agree to join in.

Why have I been asked?

We are asking you if you would like to take part because you are in Year 4.

We are asking 180 children to help us.

Your parent/carer has said it is OK for you to join in.

Do I have to join in?

No you don't have to if you don't want to! You can ask questions before choosing whether you want to join in.

You can change your mind at any time by telling the researcher or your parent/carer. You don't have to say why.

If you decide to stop, no one will be upset with you.

What will happen?

Your teacher will do some fun activities with you before the intervention starts. Then your teaching assistant will work with you for three sessions of 30 minutes every week for 20 weeks in your school.

In these sessions you will do lots of fun activities and your teaching assistant will make audio recordings of you creating stories.

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Will anything about the research upset me?

No, the activities will be fun and they will be like the normal activities that you are used to doing in class.

Will joining in help me?

The study aims to help you with your comprehension.

Will anyone else know I'm doing this?

The people in our research team will know you are taking part. No one will know that you have helped us with this research - unless, of course, you tell them yourself!

What happens to what the researchers find out?

When we collect information from you we will keep it in a safe place and only the people doing the research, or helping with the research, can look at it. We will use the information to write about our research and to produce an intervention that can be used with other children.

Is this study OK to do?

Before any research involving people happens it has to be checked by a group of people known as a Research Ethics Committee to make sure that it is fair. This study has been checked by the Ethics Committee at the University of Oxford.

What if there is a problem or something goes wrong?

If you are not happy because of something that happened in the study, please talk to your parent/carer who will let the researcher know.



Thank you for reading – please ask us any questions.

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