The Routledge International Handbook of early Literacy Education
A Contemporary Guide to Literacy Teaching and Interventions in a Global Context
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Publication details
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Published online on: 27 Mar 2017


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INTERVENTIONS FOR CHILDREN WITH LANGUAGE DIFFICULTIES

K. S. Richard Wong

Helping young children with oral language difficulties is important because oral language skills predict the development of code-related skills (e.g. phonological awareness) in the early grades and reading comprehension in the later grades. Because adults play a vital role in shaping children’s language development, this chapter reviews the effectiveness of oral language intervention programmes delivered by different groups of adults: parents, teachers/teaching assistants and speech therapists in the settings of home, classroom and clinics respectively. Home-, classroom- and clinic-based interventions are important for helping children overcome their language difficulties, although the overall effect of any particular intervention on language outcomes may not be strong. Furthermore, receptive language problems appear to be more difficult to address than expressive language problems. Future research should explore alternative strategies for helping children to overcome difficulties in receptive language more effectively, so that these children do not fall behind even more than their peers, first in language and then in literacy development.

Interventions for children with language difficulties

‘Language difficulties’ refers to the receptive and/or expressive problems that an individual encounters in the areas of vocabulary, morphology, syntax and phonology or in a combination of these areas during the course of language development. These difficulties may represent a primary or secondary condition arising from developmental disorders such as autism, hearing impairment and general developmental difficulties (see Law et al., 2010). Also, the difficulties may originate from different sources, including social deprivation (e.g. poor quality parent–child interaction: Snow et al., 1998) or limitations in working memory (Montgomery, 2002).

Apart from affecting children’s communicative capacities, language difficulties may also lead to reading difficulties. Past research has shown that a large part of the variance in reading outcomes can be explained by the individual differences in code-related skills (e.g. phonological awareness: Bowey, 2005; Muter et al., 2004) and oral language skills (e.g. vocabulary knowledge, grammar knowledge and narrative skills: Muter et al., 2004; Storch and Whitehurst, 2002) with which children enter school (see Snowling et al., 2000 and Wagner et al., 1994...
for further details). Oral language skills are particularly important because they are associated
with the development of code-related skills (Metsala and Walley, 1998; Storch and Whitehurst,
2002; Walley et al., 2003). Also, they have been linked to children’s reading comprehen-
sion in the later grades (Storch and Whitehurst, 2002). In some studies, the association
between oral language skills (in particular, listening comprehension skills) and reading com-
prehension (Gernsbacher, 1990) was so strong (correlation coefficient $r = .90$) that improve-
ments in one domain were suggested to lead to improvements in the other (see Perfetti et al.,
2005). These results underscore the need to enhance young children’s oral language develop-
ment in order to prevent reading difficulties (Snow et al., 1998). Conversely, unresolved
difficulties with general oral language skills are likely to pose a barrier to children’s literacy
development.

Given that adults play a vital role in shaping young children’s language development, this
chapter focuses on the effectiveness of early interventions (up to grade three) delivered by
three groups of adults: parents, teachers/teaching assistants and speech therapists in the settings
of home, classroom and clinics respectively. Though varying in their professional knowledge,
these three groups of adults can help children overcome language difficulties at different
developmental stages. The chapter begins with home-based intervention because home is
the setting where adult–child interactions and literacy activities conducive to children’s lan-
guage development occur first (Purcell-Gates, 1996; Strickland and Taylor, 1989; Weigel
et al., 2006). Next, classroom-based intervention programmes at the preschool and early
primary settings are examined, followed by findings related to the effectiveness of intervention
in the clinical setting. There are some key differences between home-based and non-
home-based interventions. Non-home based interventions are more likely to be needed by
children with more severe difficulties, and/or difficulties that persist into the school years and
manifest as literacy problems. In addition, the interventions delivered by teachers/teaching
assistants or therapists are likely to be more specialized, focusing on specific aspects of
oral language development, reflecting these adults’ professional knowledge of, and training
in, language development and education. While acknowledging the importance of qualitative
research, due to space restrictions this review foregrounds large-scale quantitative studies that
provide evidence of efficacy.

**Interventions in the home environment**

Before children enter preschool, home provides the first social setting for language-supporting
adult–child interactions. Research has shown that the quantity of parent–child interaction
influences children’s oral language development, in particular vocabulary development. This
quantity was found to co-vary with the families’ socioeconomic status (SES). In the influential
study conducted by Hart and Risley (1995), professional families were predicted to utter
30 million more words than their counterparts from welfare families by the time children
were five, and this quantitative difference in language input to children translated into an
approximate 600-word gap in the children’s vocabularies at the age of 36 months. These
SES-related differences have resulted in campaigns and research programmes conducted
in the USA (e.g. Providence Talks: Hirsh-Pasek et al., 2015) aimed at improving the home
literacy environment (HLE). The HLE is an important concept because the experiences,
attitudes and materials pertaining to literacy that children encounter and interact with at
home impact on their later language and literacy skills (Griffin and Morrison, 1997; Leseman
and DeJong, 1998; Lonigan and Whitehurst, 1998; Payne et al., 1994; Sénéchal et al., 1998).
Important aspects of HLE include:
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Age. Reading to younger preschoolers is even more important than reading to older preschoolers as younger preschoolers are more dependent on oral interactions as a source of language development (Bus and van IJzendoorn, 1994; DeLoache and DeMendoza, 1987; Sénéchal and Cornell, 1993).

Frequency of book reading. Bus and colleagues (1995) found in their meta-analysis that the frequency of joint reading activities with picture books during the preschool years accounted for 7 per cent of the variance in preschool language and literacy outcomes. Before children become readers, parental support in book reading can help children access a wide variety of vocabulary, grammar structures and discourse rules otherwise unavailable in spoken language (Roberts et al., 2005; Weigel et al., 2006).

Quality of book reading activities. Interaction strategies used in book reading were found to be related to early language outcomes (Haden et al., 1996; Leseman and DeJong, 1998; Pellegrini et al., 1990; Reese and Cox, 1999; Roberts et al., 2005; van Kleeck et al., 1997). Important strategies include: encouraging young children to reflect on the meanings of words, to predict, discuss and comment on the content of stories and to relate stories to real life experiences. Scarborough and Dobrich (1994) noted that the quality of book reading accounted for 3 to 8 per cent of the variance of the language and literacy outcomes (see also Lonigan and Whitehurst, 1998; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994; Whitehurst et al., 1988), suggesting the potential of interventions to improve book reading quality.

Parental or maternal sensitivity. The emotional quality of the parent–child interaction (as indexed by factors such as parents’ supportive presence, respect for children’s autonomy, etc.) was found to be linked to children’s receptive vocabulary at age three and at entry to kindergarten (Roberts et al., 2005) and also to language and reading skills during the early elementary school years (Bus et al., 2000; DeJong and Leseman, 2001). This variable is related to parents’ SES: lower-income, less educated parents were found to have less stimulating, less responsive and more punitive interaction styles (Hashima and Amato, 1994; Mistry et al., 2004).

Motivation. Scarborough and Dobrich (1994) found that a child’s interest in reading (e.g. how often a child asks to be read to) accounted for about 14 per cent of the variance in children’s language and literacy outcomes, more than the 7 per cent of variance explained by the frequency of book reading (Bus et al., 1995).

This chapter highlights two intervention studies conducted by Whitehurst and colleagues (Lonigan and Whitehurst, 1998; Whitehurst, Arnold et al., 1994) because of their methodological rigour. Apart from using randomized controlled trials to minimize the influence of pre-existing differences between parents, the studies used a videotape training method (see Arnold et al., 1994) to reduce the effects of trainer differences on the outcome measures. The video contained a list of guidelines and taped vignettes presenting examples of parent–child interactions that conform and do not conform to the guidelines. In addition, both receptive and expressive language skills were measured. It was thus possible to evaluate whether the interventions would lead to across-the-board changes. Furthermore, their studies compared programmes led by parents and by preschool teachers, thereby enabling an evaluation of the unique contribution of parents to children’s language development. These studies focussed on a special form of joint reading around picture books called dialogic reading (DR). In DR, the parents are sensitive to the social emotional needs of their children. Instead of simply reading the text, the parents provide models of language, ask the children questions, provide the children with feedback and elicit increasingly sophisticated contributions
from the children, with the ultimate goal of facilitating the children to become the storytellers (see McCabe, this volume, for similar findings related to oral narratives).

In Whitehurst, Arnold, et al. (1994), 73 four-year-old children from low-income families, who were delayed approximately ten months on measures of language and literacy, participated in a six-week intervention, and were assigned randomly to either a control group, a teacher-led reading intervention group or a reading intervention group led by both teachers and parents. The teachers and parents in the intervention groups were trained using the aforementioned videotape training method. Comparison of pre- and post-test results showed that both intervention groups made gains in oral language skills compared with the control. Also, the children who were read to by both parents and teachers made greater gains than those who were just read to by their teachers, although the differences between the two groups were not statistically significant.

Lonigan and Whitehurst (1998) added a parent-led intervention group to the design used in Whitehurst, Arnold, et al. (1994), permitting an evaluation of the independent contribution of parents to changes in children’s oral language status. Ninety-one three- and four-year-old children from low-income families who were delayed in both receptive and expressive vocabularies (measured by the Peabody Picture Vocabulary Test-Revised, see Dunn and Dunn, 1981, and the Expressive One Word Picture Vocabulary Test, see Gardner, 1990) took part in a six-week intervention. A comparison of pre- and post-test results revealed that all three types of intervention examined (programme led by parents only, teachers only and by both parents and teachers) had a more pronounced influence on expressive language than on receptive language. Furthermore, although there was a difference in the effect size of the three types of intervention on expressive vocabulary (ranging from .30 for the teacher-only condition to .74 for the teacher-plus-parent condition), the differences in gains among the three groups were not statistically significant.

The absence of a strong effect on receptive vocabulary is probably due to this variable being more affected by parental demographic variables and beliefs (e.g. whether the parents have a stronger belief in their own role in promoting literacy) than by joint reading activities (Weigel et al., 2006). Future intervention studies should therefore target both parental beliefs and receptive language, because they show so little improvement in previous intervention studies. In addition, because parental beliefs depend so strongly on culture (e.g. Chen and Stevenson, 1995), further research should explore whether aspects of HLE that are important for English-speaking children are equally important for children from other cultures.

Interventions in the classroom setting

When the home literacy environment is less than optimal for supporting children’s language development, both preschools and schools become an important resource to help children lagging in their language skills. Past research has shown that as children become older, the relative importance of home to children’s language and literacy development will diminish because the overall school environment and children’s growing reading abilities can partially compensate for lack of family reading experiences (Cunningham and Stanovich, 1991, 1997). Four intervention studies in this area are worth highlighting: three are preschool-based (Raver et al., 2012; Weiland et al., 2013; Weiland and Yoshikawa, 2013) and one school-based (Bowyer-Crane et al., 2008), with a specific focus on the issues that schools should consider when implementing oral language interventions for young children.

Weiland and Yoshikawa (2013) examined the efficacy of a language-cum-numeracy prekindergarten programme that combined evidence-based curricula with coaching support
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for teachers. The study included 2,018 racially, linguistically and socioeconomically diverse four- and five-year-old children (50 per cent being English language learners and 69 per cent from low-income families) who were enrolled in the Boston Public Schools (BPS) public prekindergarten programme in 2008–2009. In the language component of the intervention, the children were exposed to a programme called Opening the World of Learning (OWL) (see Schickedanz and Dickinson, 2005; Dickinson et al., 2011) which serves to integrate young children’s language, literacy and socioemotional development. In the lessons, the class would discuss socioemotional issues so as to promote the learning of emotion-related vocabulary. This study was unique in several ways: first, a regression-discontinuity (RD) design was used in order to provide an unbiased estimate of the average effect of assignment to the treatment condition (vs. control) for participants immediately on either side of the birthday cut-off for entry into the programme (see Bloom, 2012; Murnane and Willett, 2010 for further details on RD). Second, the majority of the participating teachers had a master’s degree, and were therefore more likely to possess the types of knowledge and skills required for delivering the intervention. Third, coaching was emphasized in the intervention to ensure teachers’ faithfulness to the intervention (to ensure a good implementation of the OWL programme by the teachers): an experienced coach was available to model instruction, observe teachers’ practice and provide teachers with constructive feedback on their pedagogy (Neuman and Cunningham, 2009). The continual coaching support not only maintained the quality of support provided to teachers but also optimized resource allocation (see Sachs and Weiland, 2010 for further details). Finally, the inclusion of children who varied in both SES and ethnicity permitted an examination of SES-/race-related effects of the public prekindergarten programme. By the end of intervention children across the various SES levels had made significant gains in their language skills, most importantly in receptive vocabulary as measured by PPVT-III (with an effect size of 0.45). The impact on the PPVT was also larger for Hispanic children than for the monolingual English-speaking children. These findings provide initial evidence that a good implementation of the OWL curriculum can promote children’s receptive vocabulary, an area that previous studies have found to resist intervention. Also, OWL may be particularly useful in classrooms with a high proportion of Hispanic children.

While it was encouraging that children’s receptive vocabulary skills grew as a result of OWL, it was unclear which specific aspect(s) of OWL (curricula, coaching support or the use of highly qualified teachers) contributed to children’s improvement in language. Because of this, Weiland and colleagues (Weiland et al., 2013) also explored the longitudinal relationships between children’s receptive vocabulary skills and several classroom quality indicators, including the Early Childhood Environment Rating Scale-Revised Edition (ECERS), the Classroom Assessment Scoring System (CLASS) and the Early Language and Literacy Classroom Observation Tool (ELLCO). This study included 414 four-year-old children with profiles similar to the children in Weiland and Yoshikawa (2013). The results showed that although the children exhibited growth in their receptive vocabulary, none of the classroom quality indicators were associated with the children’s PPVT standardized scores. These results were, nonetheless, consistent with findings from other studies which found little evidence on the key components of effective early vocabulary intervention for young children (Marualis and Neuman, 2013; see also Burchinal et al., 2010; Burchinal, Kainz et al., 2011). Further research is thus needed to examine whether there are unexplored aspects of this OWL intervention which brought about the children’s improvement in receptive vocabulary. One potential candidate concerns the native language proficiency of the English-language learners in Weiland and Yoshikawa (2013) and Weiland et al. (2013). Gámez and Levine (2013)
observed that an exposure to high-quality native language was associated with English-language learners’ gains in native oral language skills, specifically expressive language, over the kindergarten year. Given the well-documented cross-linguistic relationship between L1 and L2 skills (e.g., Proctor et al., 2006), it is possible that the Hispanic children who had experienced more growth in English receptive vocabulary than their monolingual English-speaking peers in the two studies conducted by Weiland and colleagues had higher than average skills in their native language or had been exposed to high-quality language input in Spanish. Future interventions which include English-language learners should therefore control for the children’s native-language proficiency. Alternatively, the studies should test whether strengthening young children’s native-language skills would further enhance the impact of OWL on the children’s receptive vocabulary in English.

In Raver et al. (2012), the focus was on a different group of disadvantaged children: three-to-five-year-old children with cochlear implants. The pilot study aimed to test the effectiveness of ‘parallel talk’ in improving the language and pragmatic skills of three preschoolers with cochlear implants who were at least one-year delayed in their receptive/expressive language skills. ‘Parallel talk’ is a type of intervention in which adult–child joint attention is created through an adult commenting on a child’s play by stating what the child is doing, thinking or feeling, rather than requiring the child to answer direct questions or produce particular responses. During the intervention, five-minute parallel-talk sessions were organized three times a week during which an adult (a para-educator) provided between 19 and 30 comments on the child’s play. The results showed that the intervention was able to increase the frequency of children’s verbal turn-taking. Furthermore, two of the children participating in the study increased their verbal/vocal responses during the course of the intervention. More importantly, all children were able to generalize what they had learned to new situations involving a peer rather than an adult. These results underscore the importance of rich adult talk. Even brief and intermittent exposure was able to help disadvantaged children with persistent difficulties in language and social skills.

In Bowyer-Crane et al. (2008), the efficacy of two teacher-assistant-led intervention programmes for children with poor oral language at school entry were examined. One hundred and fifty-two four-year-old children from 19 schools were randomly assigned to either a Phonology with Reading (P + R) programme or an Oral Language (OL) programme. In the P + R programme, the children received 20 weeks of daily intervention focusing on letter–sound knowledge, phonological awareness and book-level reading skills. In the OL programme, the children received the same intensity of training but the training focused on vocabulary, comprehension, inference generation and narrative skills. The children were tested four times with measures of phoneme awareness, early literacy, vocabulary, grammar and narrative skills. At the end of intervention, the children in the OL group outperformed the P + R group on measures of vocabulary and grammatical skills, while children in the P + R group outperformed the OL group on literacy and phonological measures. In other words, OL programmes can successfully improve young children’s vocabulary and grammatical skills, which form the basis for development in reading comprehension. However, the study also found a lack of immediate transfer of OL training to reading skills. This could be because the reading tasks associated with oral language skills are only encountered some time later on (but see Bishop and Snowling, 2004 which argued that language and phonological skills are modular systems that underpin reading development and its difficulties). Taken together, these findings underscore the need to incorporate both language and code-related skills in early language curriculum.

The review above showed that classroom-based intervention was generally effective for improving children’s oral language proficiency and in some studies the interventions were
even effective for receptive language skills. It is important for school staff to understand what oral-language-based programmes can do and what is needed in order to ensure the programmes’ success (e.g. the availability of coaching support). Moreover, teachers should also be aware of the following findings before introducing an intervention. First, there appear to be no statistical differences in the effects on children’s language and literacy outcomes between studies using a whole-class setting (e.g. Hatcher et al., 2004) and those using a small group setting (Vellutino et al., 1996) (see Snowling and Hulme, 2011 for a review). Therefore, to save costs, schools might consider delivering intervention in the whole-class rather than small-group setting. Second, about 2 per cent of the Grade 1 population respond poorly to reading comprehension interventions. These ‘poor responders’ suffered more severe phonological impairments, had poor vocabulary skills and tended to have problems in attention control (Snowling and Hulme, 2011). Schools should be aware that further research is still needed to understand what intervention strategies would work for these ‘non-responders’. Finally, teaching assistants rather than classroom teachers were involved in some previous intervention studies. They delivered the intervention outside of the regular school hours. Because of this, it is unclear whether intervention delivered by teachers during school hours will be more effective than, or as effective as, intervention delivered by assistants outside of regular school hours. Also, teaching assistants are unlikely to have the same academic qualifications and enjoy the same salary and fringe benefits as the classroom teachers. If the turnover rate of teaching assistants is high because of a lack of career prospects or other reasons, the quality of intervention they lead can be compromised. In such a situation, schools might even have to invest additional resources and time to ensure that the newly recruited teaching assistants will be able to deliver the intervention appropriately.

**Interventions in the clinical setting**

When both home- and classroom-based interventions fail, private or public speech and hearing services might serve as yet another resource to help children overcome their language difficulties. Seeing speech and hearing pathologists requires both financial resources and parents’ commitment. The fees charged at a private speech and hearing setting are not negligible and could be prohibitive for children from lower SES families, resulting in differential access to speech and hearing services across socioeconomic groups. Moreover, parents will need to invest their time by attending the therapy sessions and also practising suggested strategies with their children regularly. Recognizing the considerable financial and time costs, it is important to evaluate the effectiveness of therapist-led intervention on children’s oral language skills.

Law et al. (2010) reviewed 36 high-quality therapist-led interventions that used randomized control trials. However, compared with the classroom-based programmes, the sample size involved is smaller. Twenty-nine out of 36 studies recruited fewer than 50 participants, and the socioeconomic status of the participants was often not described. Law and colleagues noted that interventions were more effective in treating expressive than receptive language problems, echoing findings from home-based interventions. Also, one-to-one interventions appeared to be no more effective than interventions involving small group training. The implication for parents is that when finance is an issue, they could consider enrolling their children in group rather than more expensive individual therapy sessions. Finally, interventions shorter than ten weeks were less effective than training extending over a period of ten months. Since therapist-led interventions of longer duration will be more costly, lower SES children with language difficulties might not be able to afford the type and length of service
optimal for treating their problems. If educational authorities agree that therapist-led interventions are an important last resort for children with persistent language difficulties, financial assistance schemes should be introduced to improve lower SES children’s access to speech and hearing services.

While therapist-led interventions appear promising, especially for improving children’s expressive language skills, there are a few issues with previous studies. Unlike the home- or classroom-based interventions, the intervention procedures used by therapists were often not thoroughly described in the original articles. Law and colleagues attributed this to the space limits in journal articles. Regardless of the validity of this reason, the absence of such information renders the replication of a particular intervention difficult. Furthermore, only 16 of the studies reviewed (less than 50 per cent) provided SES information. It is therefore unclear whether the children’s persistent difficulties especially in the area of receptive language were a result of environmental or biological factors or their combination. Finally, it is also unclear whether other variables, such as therapists’ characteristics (experience, gender, etc.) and children’s motivation, are linked to the outcome variables in the reported studies. All these issues call for more carefully planned intervention studies with better described procedures in the future.

**Conclusion and the way forward**

This chapter began with a review of how general language skills contributed to children’s word-decoding skills and comprehension skills, followed by a description of the effectiveness of interventions conducted in the home, classroom and clinics. The review showed that both home- and classroom-based interventions were important for helping children overcome their language difficulties, although the overall effect on language outcomes may not be as strong as anticipated (e.g. frequency of book reading at home accounted for less than 10 per cent of the variance in language and literacy measures; see Bus et al., 1995). In addition, receptive language problems appeared to be more difficult to treat compared with expressive language issues especially in the home and clinical settings. Finally, apart from having persistent receptive problems, the children who do not respond well to intervention tend to have other behavioural or motivational issues (see Snowling and Hulme, 2011). While it is important to focus on the skills that are important for reading comprehension, future studies should also examine how to best motivate the learning interests of ‘poor responders’ who have become accustomed to years of falling behind their peers in reading development. Indeed, without enough motivation, it might be very difficult for these children to sustain their interest in programmes that are supposed to be helping them.

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