

Case Study 1: An Evidence-Based Practice Review Report

Theme: Interventions Involving Parents

Do Parent Conversational Interventions Improve the Expressive Language of Typically-Developing Pre-school Children?

Summary

A systematic literature review was conducted with the aim of discovering whether parent conversational interventions improve the expressive language of their typically-developing pre-school-age children. Parent conversational interventions involve parents using certain techniques which allow them to have richer conversations with their children, such as by asking them more open-ended questions, expanding on their children's utterances, and telling their children stories of their past experiences (Reese, Sparks, & Leyva, 2010).

Five studies met the inclusion criteria for this review, through searches on PsychINFO and ERIC databases. Studies involving: children with special educational needs (SEN); school-age children; publications which were not peer-reviewed journal articles; single case studies; and studies reporting secondary data were excluded. The selected studies were reviewed using Kratochwill's (2003) Coding Protocol and evaluated using Gough's (2007) Weight of Evidence Framework: two studies received medium ratings, and three received low ratings.

The studies assessed a range of aspects of children's expressive language abilities, pre- and post-intervention, such as the number of words children spoke (Boyce, Innocenti, Roggman, Jump Norman, & Ortiz, 2010); the number of narratives they produced (Peterson, Jesso, & McCabe, 1999); and the quality of their narratives (Reese, Leyva, Sparks, & Grolnick, 2010).

All the studies found that the parent conversational intervention had a significant positive effect on at least one outcome measure of children's expressive language at post-test or follow-up. These findings, along with the mostly medium effect sizes of these outcome measures, suggest that parent conversational interventions significantly improve the expressive language of typically-developing pre-schoolers. Recommendations are made for involving more parents in conversational interventions, such as incorporating these into other interventions which help low-income families, like Head Start. Further research needs are highlighted.

Introduction

Parent Conversational Interventions

The parent conversational interventions studied in this review reported the training of mothers of pre-school children to teach them to have richer conversations with their children, through a variety of techniques. These techniques included: asking their children more open-ended and context-eliciting questions (Peterson et al., 1999; Reese & Newcombe, 2007; Reese, Leyva, et al., 2010); expanding on their children's utterances (Reese, Leyva, et al., 2010); engaging their children in more frequent conversation (Boyce et al., 2010); helping their children to label, describe and relate words, and their attributes (Jordan, Snow, & Porche, 2000); discussing past-events with their children (Reese & Newcombe, 2007; Reese, Leyva, et al., 2010); using back-channel responses to encourage longer narratives from their children (Peterson et al., 1999); and asking their children about information, opinions and feelings (Boyce et al., 2010).

The mothers implemented these techniques at home with their pre-school-age children, and various measures of the children's expressive language were measured before and after the

interventions (which lasted from nine months to a year). These outcome measures were compared with a control group of children whose mothers had not been trained to implement any specific conversational techniques when talking to them, to see if there were any significant improvements in the expressive language abilities of the children in the intervention group.

There is some variation in parent conversational interventions between studies, each using slightly different techniques to develop richer parent-child conversations, and each focussing on slightly different outcome measures of children's expressive language. For example, three studies focused on children's ability to produce narratives of past events (Boyce et al., 2010; Peterson et al., 1999; Reese & Newcombe, 2007); and two studies focussed on children's expressive vocabulary knowledge and story recall (Jordan et al., 2000; Reese, Leyva, et al., 2010).

Basis in Psychological Theory

Parent conversational interventions are based on Vygotsky's (1978) social constructivist theory which states that knowledge is constructed initially within a social context before being assigned a specific purpose by individuals (Vygotsky, 1978). Therefore, in these interventions, the parent provides the scaffold of expressive language for the child, and then guides and develops the child's emerging expressive language abilities, through praise, building upon their utterances, and asking elaborative questions.

These interventions also relate to Bandura's (1963) social learning theory. This theory suggests that learning is a cognitive process, not just a behavioural one, which occurs in a social context, and can happen through observation, direct instruction, or reinforcement

(Bandura, 1963). Therefore, in these interventions, the child may observe the way their parent speaks, and techniques they use, and then copy these to develop their own expressive language abilities. Also, the praise and elaboration offered by the parent in these interventions acts as reinforcement to the child, leading to them expanding further on their narratives.

These theories are supported by research evidence which shows that when young children are spoken to more by adults around them, such as through adults modelling simple language and responding when children initiate conversations, they develop better expressive language abilities than children who are spoken to less (Girolametto, Weitzman, & Greenberg, 2003). This suggests the importance of conversational interventions, such as the ones discussed in this review, for encouraging children to learn and develop strong expressive language abilities through observation and scaffolding by key adults around them.

Rationale

Between 2005 and 2010 the number of children in the UK with speech, language and communication needs increased by 58%, to 113,000 children, making up a substantial proportion of the total number of children with SEN (DFE, 2011). Therefore, a large part of the role of Educational Psychologists (EPs) and Speech and Language Therapists (SALTs) is in helping children with language difficulties to improve their language skills. As oral language skills enable children to acquire literacy skills later on (Scarborough, 2001), children with language difficulties are likely to encounter many literacy and curriculum difficulties during their school career, creating further strain on the time of EPs. Early interventions to improve children's expressive language abilities could help this situation.

Much research on interventions to improve young children's language abilities focusses on training teachers in book reading or conversational interventions, which is time consuming for teachers and expensive (Wasik, Bond, & Hindman, 2006), or on parent-child shared book reading. There is a positive link between parents' literacy practices and their children's later language and literacy development (Sénéchal, LeFevre, Thomas, & Daley, 1998). Thus, shared book reading offers a great opportunity for parents to help develop their children's emergent language and literacy skills, preventing difficulties in these areas later. However, although shared book reading is a good source of story-telling and a rich form of parent-child conversation, it has been found to be far less common in many low-income families (Raikes et al., 2006) than it is in middle-class families (Phillips & McNaughton, 1990).

There seems to be the need for an alternative way for parents from families who do not read with their children to still help their children develop effective expressive language, and later literacy, abilities. Parent conversational interventions, such as story-telling of personal experiences by parents, offer an alternative form of story-telling to book reading (Reese, Sparks, & Leyva, 2010). Story-telling by parents to their children about events from their life has been found to occur in a wide range of cultures (Miller, Potts, Fung, Hoogstra, & Mintz, 1990), and may be an effective way for children from families who do not read to still develop strong expressive language skills (Reese, Sparks, & Leyva, 2010).

By parents having rich conversations with their children at home during their pre-school years, fewer children will start school with communication difficulties, leading to better academic attainment at school, and reduced pressure and workload on teachers, EPs, and SALTs. Therefore, parent conversational interventions could be of great importance for EP practice, on both a practice and an outcome level, for a number of reasons. Firstly, if fewer children have communication difficulties, EPs will have more time and resources to spend helping children

with other difficulties. Secondly, a lot of evidence shows a high prevalence of behavioural difficulties in children with language difficulties (Fujiki, Brinton, & Clarke, 2002; Lindsay, Dockrell, & Strand, 2007). Therefore, by improving children's language abilities, this should lead to fewer children with behavioural difficulties, resulting in: less disruption in classrooms; less work for EPs with children with behavioural difficulties; less work for EPs on training teachers in classroom management and school-wide behavioural management issues; and overall better engagement in school for these children and the children around them. All of these factors will lead to better outcomes for these children and fewer exclusions. Thirdly, if more children can communicate their needs better, this will reduce the frustration of adults around them, such as school staff and family members. This, in turn, will lead to less work for EPs in helping children with social and emotional difficulties brought on by discord with family or school staff.

Review Question

Do Parent Conversational Interventions Improve the Expressive Language of Typically-Developing Pre-school Children?

A Critical Review of the Evidence Base

Literature Search

A literature search was conducted on 14th December 2014 and again on 3rd February 2015 using the databases ERIC and PsychINFO. Only peer-reviewed journal articles were selected; search terms were used in all fields, for all years, and were combined using the connective 'AND'. The number of results for each search in each database is reported in table 1.

Table 1

Results of Search Terms used in Databases

Search Terms	ERIC Results	PsychINFO Results
parent AND intervention AND conversation	64	40
parent AND intervention AND narrative	72	69
parent AND intervention AND story	106	55

From these results, article titles and abstracts were read for relevance using the inclusion and exclusion criteria of this literature review (see table 2). Five relevant studies being selected (see table 3), along with a review paper: Reese, Sparks, and Leyva (2010). Appendix II provides a list of excluded studies, with rationale for exclusion. An ancestral search was conducted on the five relevant studies and the review paper, to see if this produced any more relevant studies, but it did not. Appendix I contains a summary of the selected articles. Figure 1 depicts the study selection process.

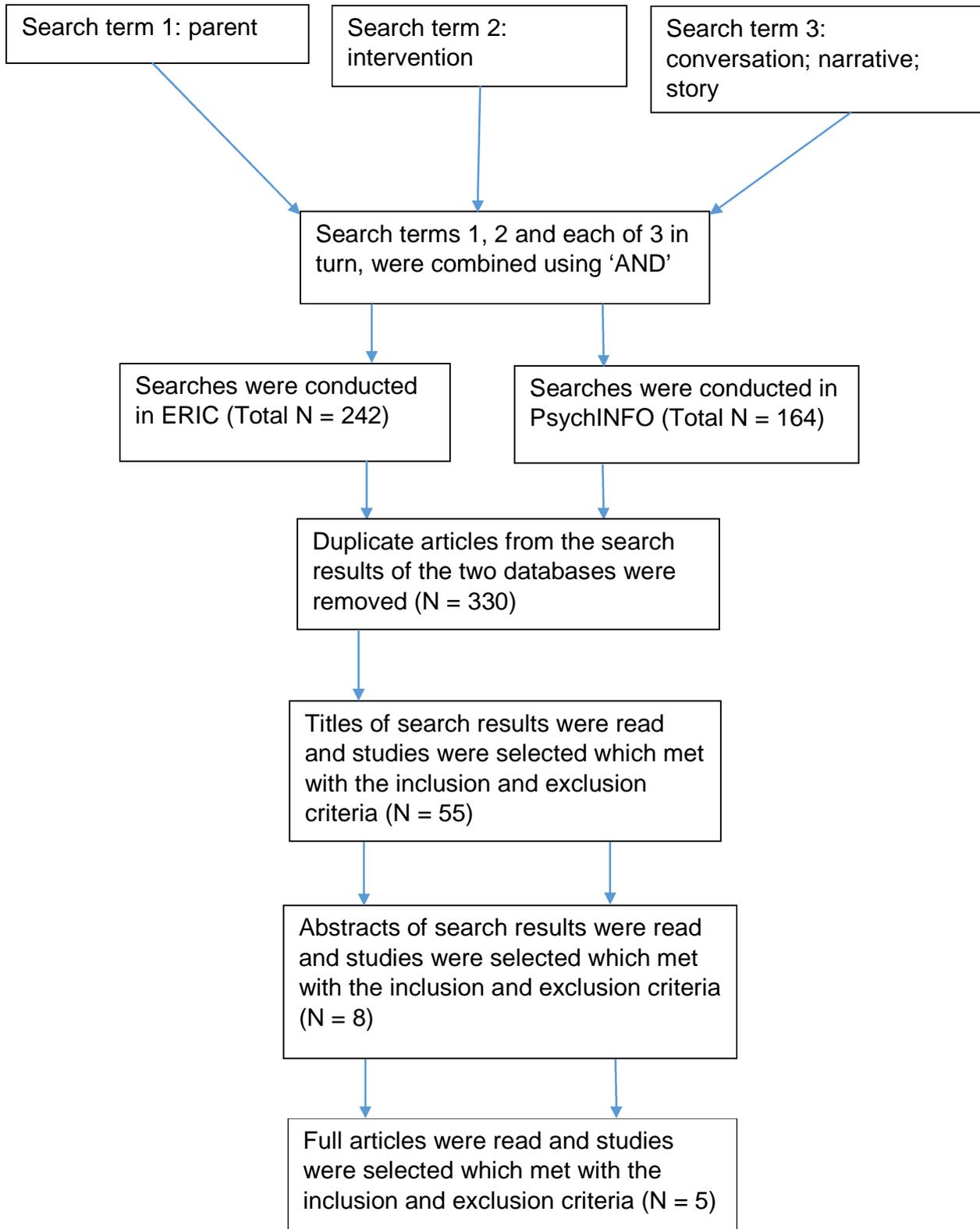


Figure 1. Study Selection Process for this Review.

Table 2

Inclusion and Exclusion Criteria of this Literature Review, with Rationale

Research Elements	Inclusion Criteria	Exclusion Criteria	Rationale
Intervention	Focussing on parent conversational interventions	Not focussing on parent conversational interventions	This review is interested in how parent conversational interventions can improve children's expressive language.
Participants	1) Pre-school children	1) School-age children or adults	1) Expressive language develops a great deal during the pre-school years.
	2) Children with no established SEN	2) Children with some form of SEN	2) Typically-developing children are a more homogenous group than those with various SEN, making the different studies in the review more comparable.
Setting	Interventions conducted in the home	Interventions conducted outside the home	A great deal of parent-child conversations occur in the home, giving these studies greater ecological validity. Also, conversations occurring in the home may be easier for the parent to document than those occurring outside the home.
Study design	1) An experimental design using primary data and involving an intervention group and a comparison group of children	1) Single case studies, studies reporting secondary data, or studies with no comparison group	1) A comparison group is needed to be able to judge whether the intervention makes a difference to the children's expressive language abilities.
	2) A design reporting pre- and post-intervention data on children's expressive language abilities	2) Studies with no pre- and post-intervention data on children's expressive language abilities	2) Pre- and post-intervention data is needed to calculate the effect sizes of the outcome measures of the intervention.
Language	Studies published in English	Studies published in a language other than English	The reviewer can only read English.
Date	Studies published before February 2015	Studies published after February 2015	The review must be completed by 23 rd February 2015.
Publication type	Peer-reviewed journal articles	Books, book chapters, dissertations, pilot studies, non-peer-reviewed journal articles	Peer-reviewed journal articles are assessed through rigorous criteria, suggesting that the research they document is of a higher quality than other forms of publication.

Table 3

Studies Selected for Review

Boyce, L.K., Innocenti, M.S., Roggman, L.A., Jump Norman, V.K., & Ortiz, E. (2010). Telling Stories and Making Books: Evidence for an Intervention to Help Parents in Migrant Head Start Families Support Their Children's Language and Literacy. *Early Education and Development, 21*(3), 343-371.

Jordan, G.E., Snow, C.E., & Porche, M.V. (2000). Project EASE: The Effect of a Family Literacy Project on Kindergarten Students' Early Literacy Skills. *Reading Research Quarterly, 35*, 524-46.

Peterson, C., Jesso, B., & McCabe, A. (1999). Encouraging Narratives in Preschoolers: An Intervention Study. *Journal of Child Language, 26*, 49-67.

Reese, E., & Newcombe, R. (2007). Training Mothers in Elaborative Reminiscing Enhances Children's Autobiographical Memory and Narrative. *Child Development, 78*, 1153-70.

Reese, E., Leyva, D., Sparks, A., & Grolnick, W. (2010). Maternal Elaborative Reminiscing increases Low-income Children's Narrative Skills relative to Dialogic Reading. *Early Education and Development, 21*(3), 318-342.

Critical Review of Selected Studies

The selected studies were all critiqued using the Coding Protocol for Group-Based Design Studies (Kratochwill, 2003). Appendix IV includes a full coding protocol, completed for one of the studies in this review.

The studies were also evaluated using Gough's (2007) Weight of Evidence (WoE) Framework, which assesses: methodological quality (WoE A); methodological relevance to the review question (WoE B); topic relevance to the review question (WoE C); and overall relevance based on their scores on the other three categories (WoE D). Appendix III outlines the criteria by which the WoE ratings were achieved, with rationale. Table 4 shows the WoE ratings assigned to each study.

Table 4

Weight of Evidence Ratings

Study	Weight of Evidence A	Weight of Evidence B	Weight of Evidence C	Weight of Evidence D
Boyce et al. (2010)	Low (1.75)	Low (1)	Medium (2)	Low (1.58)
Jordan et al. (2000)	Low (1.50)	Medium (2)	Medium (2)	Low (1.83)
Peterson et al. (1999)	Medium (2.00)	Low (1)	High (3)	Medium (2.00)
Reese & Newcombe (2007)	Low (1.80)	Medium (2)	High (3)	Medium (2.67)
Reese, Leyva, et al. (2010)	Medium (2.25)	Low (1)	Medium (2)	Low (1.75)

Participants

In line with the inclusion criteria of this review, all the participants were pre-school-age children: aged from 19 months to about 60 months at pre-test. The differing ages of the children at pre-test in each studies may have impacted on how they responded to the conversational interventions. These children all fitted with the inclusion criteria of being typically-developing, but one study mentioned that five of the children in their sample had been identified in early childhood as having some form of special need (Jordan et al., 2000). However, as the rest of the 248 participants in this study were typically-developing, the reviewer decided it was acceptable to still include this study in the review.

Participants in two of the studies were from disadvantaged backgrounds (Peterson et al., 1999; Reese, Leyva, et al., 2010). Evidence suggests that the amount of time parents spend talking

with their children accounts for a large proportion of the differences in vocabulary between children from low-income families and those from higher-income families (Hoff, 2003). Also, children with low socioeconomic status have been found to often be at a disadvantage in the school system (Peterson et al., 1999), making this population very relevant to study here. In one study the children were from migrant families, which move around a lot, leading to disruption to their children's education, and the parents often work long hours, leading to limited time for parent-child conversations (Boyce et al., 2010).

Participants were recruited in a number of ways, such as through Head Start programmes (Boyce et al., 2010; Reese, Leyva, et al., 2010); at nursery (Jordan et al., 2000); by putting up flyers in day-care centres and health clinics (Reese & Newcombe, 2007); and through social welfare services (Peterson et al., 1999). Three studies were conducted in the USA (Boyce et al., 2010; Jordan et al., 2000; Reese, Leyva, et al., 2010); one was conducted in Canada (Peterson et al., 1999); and one was conducted in New Zealand (Reese & Newcombe, 2007). Participants in all studies spoke English as their first language (with some bilingual participants), except for one study, where the participants' first language was Spanish (Boyce et al., 2000).

Boyce et al. (2010) and Reese, Leyva, et al. (2010) used a participant group who were currently in another intervention: a Head Start programme. All the other studies included participants who were not concurrently participating in another intervention, and none of the studies mentioned whether the participants had previously taken part in another intervention.

Design

All studies included a control group as a comparison to the intervention group, and all the studies used random assignment of participants to groups, to establish group equivalence. All

studies used a 'no intervention' comparison group, and one study used an alternative intervention comparison group, as well as a 'no intervention' comparison group (Reese, Leyva, et al., 2010). All studies used a quantitative design; one study also included a qualitative element of parental satisfaction, but most of the outcome measures of this study were quantitative (Boyce et al., 2010). None of the studies counter-balanced their change agents, as the change agents were parents so this was not possible.

A power analysis was conducted to see whether studies had included a sufficient number of participants to find a significant effect of their intervention. To discover this, the reviewer searched for meta-analyses of interventions to improve children's expressive language, to determine the expected effect sizes for interventions in this area. There were no meta-analyses specifically relating to interventions to improve children's expressive language, so a meta-analysis was used which looked at interventions aimed at helping children with speech and communication delay (Law, Garrett, & Nye, 2004). This reported mostly medium effect sizes across outcome measures such as expressive phonology, expressive vocabulary, and expressive syntax (Law et al., 2004). Of the studies included in the current review, Boyce et al. (2010), Peterson et al. (1999) and Reese, Leyva, et al. (2010) did not include a sufficient number of participants (N = 64 per group) to detect a medium effect size at an alpha level of .05, according to Cohen's criteria (Cohen, 1992), leading to lower WoE B ratings.

Intervention

The quality of the intervention in each study was assessed using WoE C criteria, which looked at: the setting for the intervention training; the intervention duration; the number of outcome measures relating to children's expressive language; whether the outcome measures examined

children's production of sentences and phrases; and whether the intervention focussed solely on parent-child conversations. Interventions in all the studies were conducted at the children's home. As this was a naturalistic setting, the children's expressive language during the intervention would be more likely to be representative of their day-to-day expressive language as they would be used to conversing with their mother at home. All studies also conducted the parent training sessions in the home, except for Jordan et al.'s (2000) study which conducted training at the children's nursery. This led to a lower WoE C rating as ecological validity would be greater if the training occurred in the same location as the intervention.

The interventions in four of the studies were conducted over a period of 9-12.5 months; one study did not report how long the intervention ran for (Boyce et al., 2010). Peterson et al. (1999) and Reese and Newcombe (2007) were the only studies to include a follow-up, both 12 months after post-tests.

The studies included different numbers of outcome measures relating to children's expressive language. Boyce et al. (2010) included two, leading to a lower WoE C rating; Jordan et al. (2000), Peterson et al. (1999) and Reese, Leyva, et al. (2010) included three; and Reese and Newcombe (2007) included 9. Peterson et al. (1999), Reese and Newcombe (2007), and Reese, Leyva, et al. (2010) looked at children's production of clauses, sentences, or aspects of sentence structure rather than just measuring their vocabulary knowledge or the number of words they produced; this contributed to higher WoE C ratings.

Three of the studies focussed solely on parent-child conversations, leading to higher WoE C ratings (Jordan et al., 2000; Peterson et al., 1999; Reese & Newcombe, 2007). Boyce et al. (2010) also looked at making the parents' narratives into books, and Reese, Leyva, et al. (2010) also looked at parent-child dialogic reading.

Outcome Measures

All studies assessed outcome measures of some aspect of children's expressive language abilities, however these differed slightly in each study. The outcome measures of the different studies fell into the following aspects of expressive language: vocabulary; narrative quality; narrative quantity; and story recall. Table 5 is organised by these conceptual categories in order to make the outcome measures of the different studies more comparable. Only outcome measures relating to children's expressive language are reported below.

Boyce et al. (2010) measured the total number of words and total number of different words children said during a two minute narrative, pre- and post-intervention. Jordan et al. (2000) measured various aspects of children's language knowledge, by using sub-tests of the Comprehensive Assessment Programme, including: language vocabulary, sequencing in story production, and forming words, pre- and post-intervention. Peterson et al. (1999) measured: the number of personal experience narratives children produced; the number of clauses in each child's three longest narratives; and the number of clauses in every turn each child took in conversation, through elicitation by an experimenter, pre- and post-intervention and at a follow-up session. They defined a narrative as an instance of talking about an event which is removed in time from the event being spoken about and contains at least two clauses, and they defined a clause as any utterance containing a subject and a predicate (Peterson et al., 1999). Reese and Newcombe (2007) looked at the number of elaborations, repetitions, placeholders, off-topic responses, yes-no responses, descriptions, action words, orientations, and evaluations children mentioned during mother-child and researcher-child conversations, pre- and post-intervention and at a follow-up session. Reese, Leyva, et al. (2010) measured children's expressive vocabulary using the Expressive Vocabulary Test. They also measured children's

recall of a story by having a researcher read the children a story and then asking them to retell the story to a puppet: their story recalls were transcribed and they were assigned points for each proposition they used (Reese, Leyva, et al., 2010). Children's narrative quality was measured through story recall as well, with one point assigned each time they used: descriptors, qualifiers, internal states, temporal terms, causal terms, character introduction, and dialogue (Reese, Leyva, et al., 2010).

The effect size of each of the main outcome measures in each study was calculated for outcomes pre- and post-intervention, using pre-test and post-test means and standard deviations (SDs) for the intervention group and the comparison group (see table 5). Although some of the studies reported effect sizes, these were recalculated by the reviewer, using the pre-post-control standardised mean difference (PPC SMD) effect size formula (Morris, 2007), to ensure the same method was used to calculate all of them. The effect size descriptors are based on Cohen's criteria (Cohen, 1988). Reese and Newcombe (2007) provided means and SDs for only two of the outcome measures they looked at, so these were the only outcomes measures the reviewer could calculate the effect size of. Reese, Leyva, et al. (2010) included two comparison groups, but effect sizes were calculated using data just from the intervention group and the 'no intervention' comparison group to make the results more comparable to the other studies. Confidence intervals were calculated using the Campbell effect size calculator: by inputting the sample size (N) at post-test (or pre-test if post-test Ns were not available); the mean difference between pre- and post-test; and the SDs from pre-test.

Table 5

Effect Sizes of Children’s Expressive Language Outcome Measures

Outcome Measure	Study	Sample Size at Pre-test	Effect Size	Effect Size Descriptor	Confidence Intervals (95%)	Study Overall WoE Rating
Vocabulary						
Total number of different words	Boyce et al. (2010)	75	0.55	Medium	0.09, 1.02	Low (1.58)
Language vocabulary	Jordan et al. (2000)	248	0.66	Medium	0.38, 0.94	Low (1.83)
Expressive vocabulary	Reese, Leyva, et al. (2010)	23	-0.13	No intervention effect	-0.95, 0.69	Low (1.75)
Narrative Quantity						
Total number of words	Boyce et al. (2010)	75	0.63	Medium	0.16, 1.10	Low (1.58)
Number of narratives produced	Peterson et al. (1999)	20	0.74	Large	-0.17, 1.64	Medium (2.00)
Number of clauses in 3 longest narratives	Peterson et al. (1999)	20	-0.41	No intervention effect	-1.30, 0.48	Medium (2.00)
Number of clauses in each turn-taken in conversation	Peterson et al. (1999)	20	0.47	Medium	-0.42, 1.36	Medium (2.00)
Narrative Quality						
Elaborations	Reese & Newcombe (2007)	128	1.80	Large	1.39, 2.21	Medium (2.67)
Placeholders	Reese & Newcombe (2007)	128	1.04	Large	0.67, 1.41	Medium (2.67)
Narrative quality	Reese, Leyva, et al. (2010)	23	0.77	Large	-0.07, 1.62	Low (1.75)
Forming words	Jordan et al. (2000)	248	0.16	Small	-0.12, 0.44	Low (1.83)
Story Recall						
Story recall	Reese, Leyva, et al. (2010)	23	0.17	Small	-0.65, 0.99	Low (1.75)
Story sequencing	Jordan et al. (2000)	248	0.54	Medium	0.26, 0.82	Low (1.83)

Results

The studies all found some significant positive effects of the parent conversational interventions on various aspects of children's expressive language abilities. Reese, Leyva, et al. (2010) found that children in the intervention group had significantly better narrative quality than children in the control group and children in the dialogic reading group (Reese, Leyva, et al., 2010). Similarly, Peterson et al. (1999) found that, although there were no significant effects of the intervention at post-test on narrative measures, at follow-up children in the intervention group produced more narratives; their longest narratives were longer; and they said more clauses in each turn in conversation, than children in the control group (Peterson et al., 1999).

Reese and Newcombe's (2007) study showed that children in the intervention group used significantly more elaborations and repetitions, and slightly more yes-no responses, when recounting past events, than children in the control group (Reese & Newcombe, 2007). This concurs with the findings of Boyce et al. (2010) which showed a significant increase in the total number of words used and total number of different words used by children in the intervention group during shared narrative activities with their parent, whereas there was no significant increase in these measures by children in the control group (Boyce et al., 2010). Similarly, Jordan et al.'s (2000) study showed that children in the intervention group made significantly greater improvements in language vocabulary and story sequencing, than children in the control group (Jordan et al., 2000).

Two studies received medium WoE ratings (Peterson et al. 1999; Reese & Newcombe 2007), and three studies received low WoE ratings (Boyce et al., 2010; Jordan et al., 2000; Reese, Leyva, et al. 2010). However, the WoE ratings did not reflect the effect sizes found in the studies: studies found mainly medium or large effect sizes, regardless of their WoE ratings.

Five of the outcome measures in these studies showed medium effect sizes; four of the outcome measures showed large effect sizes (two of these effect sizes showed a difference greater than one SD); two outcome measures showed small effect sizes; and two outcome measures showed negative effect sizes. The WoE ratings reflect the difficulties in conducting parent conversational interventions, such as problems in ensuring implementation fidelity, difficulty in getting an 'active' comparison group, and the difficulty in recruiting sufficient participants and retaining them for long enough to conduct post-test and follow-up assessments. It was hard to draw comparisons between these studies as their methods were all slightly different, including differing lengths of interventions and outcome measures assessing various aspects of children's expressive language.

Most of the expressive language outcome measures reported in the studies showed medium or large effect sizes. The exceptions to this were two outcome measures which showed a small effect size: story recall in Reese, Leyva, et al.'s (2010) study, and forming words in Jordan et al.'s (2000) study. There were also two outcome measures which had a negative effect size: in Peterson et al.'s (1999) study the control group produced a greater number of clauses in their three longest narratives than the intervention group; and in Reese, Leyva, et al.'s (2010) study the control group achieved higher scores on the Expressive Vocabulary Test than the intervention group.

The studies with smaller samples (Peterson et al., 1999; Reese, Leyva, et al., 2010) had wider ranging confidence intervals than the studies with larger sample sizes, suggesting that the calculated effect sizes of these outcome measures are a less precise estimate of the actual effect of the intervention. These wider ranging confidence intervals often included zero; this

suggests that in these cases the null hypothesis cannot be rejected with 95% confidence, so it is not clear that the intervention led to an improvement in children's expressive language.

Discussion and Conclusions

This review has looked in depth at five studies reporting parent conversational interventions. These studies show the positive effects of parent conversational interventions on various aspects of typically-developing pre-school children's expressive language, such as improved vocabulary (Boyce et al., 2010; Jordan et al., 2000; Reese, Leyva, et al., 2010); longer and more frequent narratives (Boyce et al., 2010; Peterson et al., 1999); better narrative quality (Jordan et al., 2000; Reese & Newcombe, 2007; Reese, Leyva, et al., 2010); and better story recall (Jordan et al., 2000; Reese, Leyva, et al., 2010).

The mainly medium and large effect sizes calculated for the outcome measures of these studies were in line with those found in a meta-analysis of children's speech and language outcome measures as a result of interventions (Law et al., 2004). The medium WoE ratings received by two studies (Peterson et al. 1999; Reese & Newcombe 2007) suggest that some satisfactory research has been conducted on parent conversational interventions. All this evidence provides encouraging support for parent conversational interventions in improving pre-school children's expressive language.

Recommendations

Parent conversational interventions, such as those described in this review, could be used in practice to help improve pre-schoolers emergent language and literacy skills, particularly those

from low-income families, who are at risk of developing oral language and reading difficulties (Snow, Burns, & Griffin., 1998). These interventions could be implemented either in isolation or incorporated into other interventions aimed to help develop children's language and literacy skills, such as Head Start (Reese, Leyva, et al., 2010).

The results of improved narrative abilities in the follow-up but not the post-test in Peterson et al.'s (1999) study, suggests that the intervention might take some time to have a measurable effect on some aspects of children's expressive language. Further research including follow-up assessments of a variety of outcome measures of children's expressive language is required to provide more conclusive evidence of the long-term effects of parent conversational interventions.

Only one study measured parental satisfaction during the intervention (Boyce et al., 2010). Further research could measure more mothers' feelings towards these interventions and check that their feelings are not affecting the way they are implementing the intervention once they have been trained in the techniques. Further research could also monitor more carefully mothers' implementation fidelity of the intervention: a limited amount of monitoring of this contributed to lower WoE A ratings in many of the studies. A limitation of this review is that it was only conducted by one reviewer, who was only able to review articles published in English.

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Appendix I - Summaries of Reviewed Studies

Table 6

Key Features of the Reviewed Studies

Study	Sample (at start of study)	Intervention	Design	Outcome Measures	Main Findings
Boyce et al. (2010)	75 pre-school children (mean age: 41 months)	<p><u>Training</u> – Two SHELLS workers came to the mothers’ homes at various points throughout the intervention, and showed them, using a manual, conversational techniques to use, checked on their progress, and helped them turn their narratives into books.</p> <p><u>Implementation</u> - Storytelling for the Home Enrichment of Language and Literacy Skills (SHELLS) – Mothers used language elicitation strategies when talking to their children, such as encouraging their child’s participation in conversation, and asking them about information, opinions and feelings. They also told their children stories from their past and made these into books.</p> <p><u>Duration</u> – Not specified.</p> <p><u>Monitoring</u> – Home visits were video-taped and rated against subscales of the Home Visit Rating Scales.</p>	Between participants, randomised pre-test-post-test-controlled design	<p>1) Total number of words</p> <p>2) Total number of different words</p>	Children in the intervention group showed a significant increase in the total number of words used and total number of different words used during shared narrative activities with their parent, whereas there was no significant increase in these measures by children in the control group.

Jordan et al. (2000)	248 pre-school children (age: around 60 months)	<p><u>Training</u> – Parent training sessions were held during the day at their children’s nursery, once a month for five months.</p> <p><u>Implementation</u> - Early Access to Success in Education (Project EASE) – Mothers used techniques to engage their children in extended conversations at meal-times and other home situations: they helped them to label, describe and relate words, and their attributes.</p> <p><u>Duration</u> – 9 months.</p> <p><u>Monitoring</u> – Parent attendance at the training sessions was noted.</p>	Between participants, randomised pre-test-post-test-controlled design.	<ol style="list-style-type: none"> 1) Language vocabulary 2) Story sequencing 3) Forming words 	Children in the intervention group made significantly greater improvements in language vocabulary and story sequencing, than children in the control group.
Peterson et al. (1999)	20 pre-school children, (mean age: 39 months)	<p><u>Training</u> – A researcher visited mothers at their homes and taught them techniques to elicit narratives from their children. Mothers were also shown transcripts and listened to tape recordings of parent-child conversations.</p> <p><u>Implementation</u> - Mothers spent more time in narrative conversation with their children, asking more open-ended and context-eliciting questions, and using back-channel responses to encourage longer narratives from their children.</p> <p><u>Duration</u> – 12 months.</p> <p><u>Monitoring</u> – Mothers were asked to record some conversations between them and their child.</p>	Between participants, randomised pre-test-post-test-controlled design.	<ol style="list-style-type: none"> 1) Number of narratives produced 2) Number of clauses in 3 longest narratives 3) Number of clauses in each turn-taken in conversation 	At follow up, children in the intervention group produced more narratives; their longest narratives were longer; and they said more clauses in each turn in conversation, than children in the control group.

<p>Reese & Newcombe (2007)</p>	<p>128 pre-school children (mean age: 19 months)</p>	<p><u>Training</u> – Researchers visited mothers in their homes and gave them training on conversational techniques at three time points during the intervention, roughly 3 months apart.</p> <p><u>Implementation</u> - Mothers engaged in elaborative reminiscing about past events with their children through the use of techniques such as open-ended questions.</p> <p><u>Duration</u> – 12.5 months.</p> <p><u>Monitoring</u> – All visits to the mothers’ homes were audiotaped and videotaped.</p>	<p>Between participants, randomised pre-test-post-test-controlled design.</p>	<ol style="list-style-type: none"> 1) Elaborations 2) Placeholders 3) Yes-no responses 4) Repetitions 5) Off-topic responses 6) Descriptions 7) Action words 8) Orientations 9) Evaluations 	<p>Children in the intervention group used significantly more elaborations and repetitions, and slightly more yes-no responses, when recounting past-events, than children in the control group.</p>
<p>Reese, Leyva, et al. (2010)</p>	<p>41 pre-school children (mean age: 50 months)</p>	<p><u>Training</u> – Researchers visited mothers in their homes and gave them a 45 minute training session, which involved showing them on a computer either conversational techniques or dialogic reading techniques.</p> <p><u>Implementation</u> - Mothers engaged in elaborative reminiscing about past events with their children through the use of techniques such as open-ended questions, and expanding on their child’s utterances. An alternative intervention group engaged in dialogic reading with their children.</p> <p><u>Duration</u> – 12 months.</p> <p><u>Monitoring</u> – No monitoring of the intervention was conducted.</p>	<p>Between participants, randomised pre-test-post-test-controlled design.</p>	<ol style="list-style-type: none"> 1) Expressive vocabulary 2) Story recall 3) Narrative quality 	<p>Children in the intervention group had significantly better narrative quality than children in the control group and children in the dialogic reading group.</p>

Appendix II – List of Excluded Studies

The studies listed below in table 7 came up in the searches conducted in ERIC and PsychINFO. They were excluded when the reviewer read past the title and abstract to the main content of the study. Studies that came up in searches but did not match the inclusion criteria due to information in their title or abstract are not included in this list.

Table 7

Excluded Studies, with Rationale

Excluded study reference	Rationale for exclusion
Hart, B. (2000). A Natural History of Early Language Experience. <i>Topics in Early Childhood Special Education</i> , 20(1), 28-32.	This is not an intervention study.
Schaller, A., Rocha, L.O., Barshinger, D. (2007). Maternal Attitudes and Parent Education: How Immigrant Mothers Support Their Child's Education despite Their Own Low Levels of Education. <i>Early Childhood Education Journal</i> , 34(5), 351-356.	This is not an intervention study.
Spencer, T.D, Kajian, M., Petersen, D.B, Bilyk, N. (2013). Effects of an individualized narrative intervention on children's storytelling and comprehension skills. <i>Journal of Early Intervention</i> , 35(3), 243-269.	The intervention was not conducted by parents.

Appendix III - Criteria for Weight of Evidence (WoE) Ratings, with Rationale

Kratochwill's (2003) coding protocol was used to assign WoE A ratings to studies: the scores for each section of the key features part of the coding protocol were averaged, providing this rating for each study (see table 8). The rationale for using this criteria for WoE A is that it has been identified by Kratochwill (2003) as providing an effective measure of the methodological quality of studies. WoE B and WoE C ratings were calculated using criteria generated by the reviewer, reflecting each study's methodological relevance to the review question, and topic relevance to the review question, respectively. The rationale for WoE B and WoE C is included in parentheses next to each of the criteria outlined below. The WoE D ratings were calculated by averaging the ratings of WoE A, B and C for each study.

Studies were allocated a score of 3 for a high rating, a score of 2 for a medium rating, and a score of 1 for a low rating. Studies which did not meet the criteria for any rating were given a score of 0. For WoE A and WoE D, which both involved averaging multiple ratings, a score of 1-1.99 was coded as low, 2-2.99 was coded as medium, and 3 was coded as high. Studies were also assigned a high WoE D rating if they scored high ratings twice in WoE A, B, and C.

Weight of Evidence A - Methodological quality

1) Measurement

High

- The study reported reliability ratings of .85 or higher
- Data was collected using multiple methods
- Data was collected from multiple sources
- Studies reported validity for all measures used, or the use of standardised assessment measures

Medium

- The study reported reliability ratings of at least .70
- Data was collected either using multiple methods or from multiple sources
- Validity was not presented
- The above criteria were met for at least 75% of the primary outcome measures

Low

- The study reported reliability ratings of at least .50
- Validity was not presented
- The above criteria were met for at least 50% of the primary outcome measures

2) Comparison Group

High

- At least one type of 'active' comparison group was used
- Group equivalence was established
- There was equivalent mortality with low attrition for each group

Medium

- A 'no intervention' comparison group was used
- Group equivalence was established
- There was equivalent mortality with low attrition for each group

Low

- A comparison group was used
- Group equivalence was established and/or there was equivalent mortality with low attrition for each group

3) Implementation Fidelity

High

- The study demonstrated strong evidence of acceptable adherence
- Evidence was measured through at least two of the following: ongoing supervision/consultation, coding sessions, or audio/video tapes
- The study demonstrated use of a manual

Medium

- The study demonstrated strong evidence of acceptable adherence
- Evidence was measured through at least one of the following: ongoing supervision/consultation, coding sessions, or audio/video tapes
- The study demonstrated use of a manual

Low

- The study demonstrated strong evidence of acceptable adherence
- Evidence was measured through at least one of the following: ongoing supervision/consultation, coding sessions, audio/video tapes, or use of a manual

4) Site of Implementation

High

- The study took place in a public school or an alternative school setting

Medium

- The study took place in a private, charter, or university-affiliated school setting

Low

- The study did not take place in a school setting, but it could be implemented in one, with a little modification

5) Follow Up Assessment Conducted

High

- The study conducted follow-up assessments over multiple intervals

Medium

- The study conducted follow-up assessments at least once, with the majority of the original sample of participants

Low

- The study conducted follow-up assessments at least once, with some of the original sample of participants

Table 8

Weight of Evidence A Ratings for each Study

Facets of WoE A	Boyce et al. (2010)	Jordan et al. (2000)	Peterson et al. (1999)	Reese & Newcombe (2007)	Reese, Leyva, et al. (2010)
Measurement	2	1	2	2	3
Comparison Group	2	2	2	2	3
Implementation Fidelity	2	2	3	2	2
Site of Implementation	1	1	1	1	1
Follow Up Assessment Conducted	N/A	N/A	2	2	N/A
Averaged Total	1.75	1.50	2.00	1.80	2.25

Weight of Evidence B - Methodological relevance to the review question

High

- The study used random assignment to groups (to ensure that any differences between the results of the intervention by control and intervention groups was not due to differences in the participants assigned to them initially)
- The study included an 'active' intervention group (to ensure that any improvements in the intervention group's expressive language was not due to increased attention, rather than the intervention itself)
- The study conducted pre- and post-intervention measures for each group (in order to see whether there was a significant difference in participants' expressive language abilities as a consequence of the intervention)
- The study used a sufficient number of participants to detect a medium effect size at an alpha level of .05, according to Cohen's criteria (Cohen, 1992).

Medium

- The study included a comparison group
- The study conducted pre- and post-intervention measures for each group
- The study used a sufficient number of participants to detect a medium effect size at an alpha level of .05, according to Cohen's criteria (Cohen, 1992).

Low

- The study conducted pre- and post-intervention measures for each group
- The study did not use a sufficient number of participants to detect a medium effect size at an alpha level of .05, according to Cohen's criteria (Cohen, 1992).

Weight of Evidence C - Topic relevance to the review question

High

- The study included at least three outcome measures relating to children’s expressive language (as this would provide a range of evidence of the effectiveness of the intervention in improving children’s expressive language abilities)
- The intervention was run over the course of at least a year (as language learning is a gradual process: this will allow the intervention more time to have a measurable effect on the participants’ expressive language abilities)
- Parent training was delivered at home (as this would provide a higher level of ecological validity than conducting training elsewhere as the intervention is designed to be delivered in the home)
- The study included a measure of expressive language which looked at participants’ sentence or phrase production, rather than just their production of single words (as this is a more conclusive measure of their overall level of expressive language)
- The study focussed solely on conversational interventions, rather than looking at reading alongside this (as conversational interventions are the focus of this review)

Medium

- They study included at least two outcome measures relating to children’s expressive language
- The intervention was run over the course of at least 6 months
- Parent training was delivered outside the home
- The study included a measure of expressive language looking at single words only

Low

- The study included only one outcome measure relating to children’s expressive language
- The intervention was run for less than 6 months
- Parent training was delivered outside the home

Weight of Evidence D – Overall weight of evidence

WoE A rating + WoE B rating + WoE C rating
 ----- = WoE D rating

3

Appendix IV - Protocols

Kratochwill's (2003) coding protocol has been slightly adapted for the purposes of this review. Sections detailing primary and secondary outcomes were removed as the studies' primary outcome measures are not necessarily the relevant outcome measures to this review. The section on clinical significance has been removed, as the studies being coded are not looking at clinical populations. The section on follow-ups has not been completed for studies which did not include a follow-up, and the section on qualitative research measures has not been completed for studies which did not include any qualitative analyses. The section on replication has been removed because none of the studies included a replication of the intervention within the same article. The section on identifiable characteristics has been removed as the interventions only comprised of one main component, or there was no evidence in the studies as to which components were necessary to produce change. An example of this protocol, completed for one of the studies in this review, is included below.

Coding Protocol: Group-Based Design

- Domain:
- School- and community-based intervention programs for social and behavioral problems
 - Academic intervention programs
 - Family and parent intervention programs
 - School-wide and classroom-based programs
 - Comprehensive and coordinated school health services

Name of Coder(s): Catherine Wright

Date: 16/01/2015

Full Study Reference in APA format: Boyce, L.K., Innocenti, M.S., Roggman, L.A., Jump Norman, V.K., & Ortiz, E. (2010). Telling Stories and Making Books: Evidence for an Intervention to Help Parents in Migrant Head Start Families Support Their Children's Language and Literacy. *Early Education and Development*, 21(3), 343-371.

Intervention Name (description from study): Storytelling for the Home Enrichment of Language and Literary Skills (SHELLS) - Mothers used language elicitation strategies when talking to their children, such as encouraging their child's participation in conversation, and asking them about information, opinions and feelings, to see if this improved their children's communication skills.

Study ID Number (Unique Identifier): 1

Type of Publication: (Check one)

- Book/Monograph
- Journal article
- Book chapter
- Other (specify):

I. General Characteristics

A. General Design Characteristics

A1. Random assignment designs (if random assignment design, select one of the following)

- A1.1 Completely randomized design
- A1.2 Randomized block design (between-subjects variation)
- A1.3 Randomized block design (within-subjects variation)
- A1.4 Randomized hierarchical design

A2. Nonrandomized designs (if nonrandom assignment design, select one of the following)

- A2.1 Nonrandomized design
- A2.2 Nonrandomized block design (between-participants variation)
- A2.3 Nonrandomized block design (within-participants variation)
- A2.4 Nonrandomized hierarchical design
- A2.5 Optional coding of Quasi-experimental designs (see Appendix C)

A3. Overall confidence of judgment on how participants were assigned (select one of the following)

- A3.1 Very low (little basis)
- A3.2 Low (guess)
- A3.3 Moderate (weak inference)
- A3.4 High (strong inference)
- A3.5 Very high (explicitly stated)
- A3.6 N/A
- A3.7 Unknown/unable to code

B. Statistical Treatment/Data Analysis (answer B1 through B6)

B1. Appropriate unit of analysis	<table border="0" style="font-size: 1.2em;"> <tr><td>✓ yes</td><td>no</td></tr> <tr><td>yes</td><td>✓ no</td></tr> <tr><td>yes</td><td>✓ no</td></tr> </table>	✓ yes	no	yes	✓ no	yes	✓ no	N/A
✓ yes		no						
yes		✓ no						
yes	✓ no							
B2. Familywise error rate controlled								
B3. Sufficiently large <i>N</i>								

Statistical Test: ANOVA

Level: .05

ES: medium

N required: 64 per group

B4. Total size of sample (start of the study): $\frac{75}{N}$

B5. Intervention group sample size: $\frac{32}{N}$

B6. Control group sample size: $\frac{43}{N}$

For studies using qualitative research methods, code B7 and B8

B7. Coding

B7.1 - Coding scheme linked to study's theoretical-empirical basis (select one) yes no

B7.2 - Procedures for ensuring consistency of coding are used (select one) yes no
 Describe procedures: the same assessor conducted all the interviews.

B7.3 Progression from abstract concepts to empirical exemplars is clearly articulated (select one) yes no

B8. Interactive process followed (select one) yes no

Describe process: _____

C. Type of Program (select one)

- C1. Universal prevention program
- C2. Selective prevention program
- C3. Targeted prevention program
- C4. Intervention/Treatment
- C5. Unknown

D. Stage of the Program (select one)

- D1. Model/demonstration programs
- D2. Early stage programs
- D3. Established/institutionalized programs
- D4. Unknown

E. Concurrent or Historical Intervention Exposure (select one)

- E1. Current exposure
- E2. Prior exposure
- E3. Unknown

II. Key Features for Coding Studies and Rating Level of Evidence/ Support

(3=Strong Evidence 2=Promising Evidence 1=Weak Evidence 0=No Evidence)

A. Measurement (answer A1 through A4)

A1. Use of outcome measures that produce reliable scores for the majority of primary outcomes. The table for Primary/Secondary Outcomes Statistically Significant allows for listing separate outcomes and will facilitate decision making regarding measurement (select one of the following)

- A1.1 Yes
- A1.2 No
- A1.3 Unknown/unable to code

A2. Multi-method (select one of the following)

- A2.1 Yes
- A2.2 No
- A2.3 N/A
- A2.4 Unknown/unable to code

A3. Multi-source (select one of the following)

- A3.1 Yes
- A3.2 No
- A3.3 N/A
- A3.4 Unknown/unable to code

A4. Validity of measures reported (select one of the following)

- A5.1 Yes validated with specific target group
- A5.2 In part, validated for general population only
- A5.3 No
- A5.4 Unknown/unable to code

Rating for Measurement (select 0, 1, 2, or 3): 3 2 1 0

B. Comparison Group

B1. Type of Comparison Group (select one of the following)

- B1.1 Typical contact
- B1.2 Typical contact (other) specify:
- B1.3 Attention placebo
- B1.4 Intervention elements placebo
- B1.5 Alternative intervention
- B1.6 Pharmacotherapy
- B1.7 No intervention
- B1.8 Wait list/delayed intervention
- B1.9 Minimal contact
- B1.10 Unable to identify comparison group

Rating for Comparison Group (select 0, 1, 2, or 3): 3 2 1 0

B2. Overall confidence rating in judgment of type of comparison group (select one of the following)

- B2.1 Very low (little basis)
- B2.2 Low (guess)
- B2.3 Moderate (weak inference)
- B2.4 High (strong inference)
- B2.5 Very high (explicitly stated)
- B2.6 Unknown/Unable to code

B3. Counterbalancing of Change Agents (answer B3.1 to B3.3)

- B3.1 By change agent
- B3.2 Statistical
- B3.3 Other

B4. Group Equivalence Established (select one of the following)

- B4.1 Random assignment
- B4.2 Posthoc matched set
- B4.3 Statistical matching
- B4.4 Post hoc test for group equivalence

B5. Equivalent Mortality (answer B5.1 through B5.3)

- B5.1 Low Attrition (less than 20% for Post)
- B5.2 Low Attrition (less than 30% for follow-up)
- B5.3 Intent to intervene analysis carried out

Findings_____

Null Findings/Negative Outcomes Associated with the Intervention (listed alphabetically by outcome): **N/A**

Outcomes	Primary vs. Secondary	Who Was Targeted for		What Was Targeted	Source	Note null/negative outcomes	Outcome Measure Used	Reliability	ES
Outcome #1:	<input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Unknown	<input type="checkbox"/> Child <input type="checkbox"/> Teacher <input type="checkbox"/> Parent/sign. Adult <input type="checkbox"/> Ecology <input type="checkbox"/> Other <input type="checkbox"/> Unknown	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> Behavior <input type="checkbox"/> Attitude <input type="checkbox"/> Knowledge <input type="checkbox"/> Other <input type="checkbox"/> Unknown	<input type="checkbox"/> Self-Report <input type="checkbox"/> Parent Report <input type="checkbox"/> Teacher Report <input type="checkbox"/> Observation <input type="checkbox"/> Test <input type="checkbox"/> Other <input type="checkbox"/> Unknown				

Type of Data Effect Size is Based On	Confidence Rating in ES Computation
(check all that apply) <input checked="" type="checkbox"/> Means & SDs <input checked="" type="checkbox"/> <i>t</i> -value or <i>F</i> -value <input type="checkbox"/> Chi-square (<i>df</i> = 1) <input type="checkbox"/> Frequencies or proportions (dichotomous) <input type="checkbox"/> Frequencies or proportions (polytomous) <input type="checkbox"/> Other (specify): <input type="checkbox"/> Unknown	(select one of the following) <input type="checkbox"/> Highly estimated (e.g., only have <i>N p</i> value) <input type="checkbox"/> Moderate estimation (e.g., have complex but complete statistics) <input type="checkbox"/> Some estimation (e.g., unconventional statistics that require conversion) <input checked="" type="checkbox"/> Slight estimation (e.g., use significance testing statistics rather than descriptives) <input type="checkbox"/> No estimation (e.g., all descriptive data is present)

F. Implementation Fidelity

F1. Evidence of Acceptable Adherence (answer F1.1 through

- F1.3 F1.1 Ongoing supervision/consultation
 F1.2 Coding intervention sessions/lessons or procedures
 F1.3 Audio/video tape implementation (select F1.3.1 or F1.3.2):

- F1.3.1 Entire intervention
 F1.3.2 Part of intervention

F2. Manualisation (select all that apply)

- F2.1 Written material involving a detailed account of the exact procedures and the sequence in which they are to be used
 F2.2 Formal training session that includes a detailed account of the exact procedures and the sequence in which they are to be used
 F2.3 Written material involving an overview of broad principles and a description of the intervention phases
 F2.4 Formal or informal training session involving an overview of broad principles and a description of the intervention phases

F3. Adaptation procedures are specified (select one) yes no unknown

Rating for Implementation Fidelity (select 0, 1, 2, or 3): 3 2 1 0

H. Site of Implementation

H1. School (if school is the site, select one of the following

options): H1.1 Public

- H1.2 Private
 H1.3 Charter
 H1.4 University Affiliated
 H1.5 Alternative
 H1.6 Not specified/unknown

H2. Non School Site (if it is a non-school site, select one of the following options)

- H2.1 Home
- H2.2 University Clinic
- H2.3 Summer Program
- H2.4 Outpatient Hospital
- H2.5 Partial inpatient/day Intervention Program
- H2.6 Inpatient Hospital
- H2.7 Private Practice
- H2.8 Mental Health Center
- H2.9 Residential Treatment Facility
- H2.10 Other (specify): _____
- H2.11 Unknown/insufficient information provided

Rating for Site of Implementation (select 0, 1, 2, or 3): 3 2 1 0

I. Follow-Up Assessment – N/A

Timing of follow up assessment: specify:

[Number of participants included in the follow up assessment: specify:

[Consistency of assessment method used: specify:

Rating for Follow-Up Assessment (select 0, 1, 2, or 3): 3 [2 1 0 N/A

III. Other Descriptive or Supplemental Criteria to Consider

A. External Validity Indicators

A1. Sampling procedures described in detail yes no

Specify rationale for selection: _____

Specify rationale for sample size: _____

A1.1 Inclusion/exclusion criteria specified yes no

A1.2 Inclusion/exclusion criteria similar to school practice yes no

A1.3 Specified criteria related to concern yes no

A2. Participant Characteristics Specified for Treatment and Control Group

Participants from Treatment Group	Grade/age	Gender	Ethnicity or Multi-ethnic	Ethnic Identity	Race(s)	Acculturation	Primary Language	SES	Family Structure	Locale	Disability	Functional Descriptors
<input checked="" type="checkbox"/> Child/Student <input type="checkbox"/> Parent/caregiver <input type="checkbox"/> Teacher <input type="checkbox"/> School <input type="checkbox"/> Other	Pre-schoolers	Male and female	Unknown	Unknown	Unknown	Unknown	Spanish	Low	Migrant families	Rural	None	At risk of under-achieving at school
<input type="checkbox"/> Child/Student <input checked="" type="checkbox"/> Parent/caregiver <input type="checkbox"/> Teacher <input type="checkbox"/> School <input type="checkbox"/> Other	Mean = 31.10 years old	Female	Unknown	Unknown	Unknown	Unknown	Spanish	Low	Migrant families	Rural	None	'Normal'

Participants from Control Group	Grade/age	Gender	Ethnicity or Multi-ethnic	Ethnic Identity	Race(s)	Acculturation	Primary Language	SES	Family Structure	Locale	Disability	Functional Descriptors
<input checked="" type="checkbox"/> Child/Student <input type="checkbox"/> Parent/caregiver <input type="checkbox"/> Teacher <input type="checkbox"/> School <input type="checkbox"/> Other	Pre-schoolers	Male and female	Unknown	Unknown	Unknown	Unknown	Spanish	Low	Migrant families	Rural	None	At risk of under-achieving at school
<input type="checkbox"/> Child/Student <input checked="" type="checkbox"/> Parent/caregiver <input type="checkbox"/> Teacher <input type="checkbox"/> School <input type="checkbox"/> Other	Mean = 30.52 years old	Female	Unknown	Unknown	Unknown	Unknown	Spanish	Low	Migrant families	Rural	None	'Normal'

A3. Details are provided regarding variables that:

A3.1 Have differential relevance for intended outcomes yes no

Specify: mother's age and primary language.

A3.2 - Have relevance to inclusion criteria yes no

Specify: the number of years of education of the mothers in each condition.

A4. Receptivity/acceptance by target participant population (treatment group)

Participants from Treatment Group	Results (What person reported to have gained from participation in program)	General Rating
<input type="checkbox"/> Child/Student <input checked="" type="checkbox"/> Parent/caregiver <input type="checkbox"/> Teacher <input type="checkbox"/> School <input type="checkbox"/> Other	Parents' satisfaction ratings of the intervention were consistently high. They described having increased enjoyment in reading, telling stories, and talking to their children. They also noticed an increase in their children's interest in communication, literacy activities and vocabulary.	<input checked="" type="checkbox"/> Participants reported benefiting overall from the intervention <input type="checkbox"/> Participants reported not benefiting overall from the intervention

A5. Generalization of Effects:

A5.1 Generalization over time

A5.1.1 Evidence is provided regarding the sustainability of outcomes after intervention is terminated: yes no

Specify: _____

A5.1.2 Procedures for maintaining outcomes are specified yes no

Specify: _____

A5.2 Generalization across settings

A5.2.1 Evidence is provided regarding the extent to which outcomes are manifested in contexts that are different from the intervention context: yes no

Specify: _____

A5.2.2 Documentation of efforts to ensure application of intervention to other settings: yes no

Specify: _____

A5.2.3 Impact on implementers or context is sustained yes no

Specify: _____

A5.3 - Generalization across persons

Evidence is provided regarding the degree to which outcomes are manifested with participants who are different than the original group of participants for with the intervention was evaluated
 yes no

Specify: _____

B. Length of Intervention (select B1 or B2)

B1. Unknown/insufficient information provided

B2. Information provided (if information is provided, specify one of the following)

B2.1 weeks $\frac{\quad}{N}$

B2.2 months $\frac{\quad}{N}$

B2.3 years $\frac{\quad}{N}$

B2.4 other $\frac{\quad}{N}$

C. Intensity/dosage of Intervention (select C1 or C2)

C1. Unknown/insufficient information provided

C2. Information provided (if information is provided, specify both of the following):

C2.1 length of intervention session $\frac{\quad}{N}$

C2.2 frequency of intervention session $\frac{1-8 \text{ sessions}}{N}$

D. Dosage Response (select D1 or D2)

D1. Unknown/insufficient information provided

D2. Information provided (if information is provided, answer D2.1)

D2.1 Describe positive outcomes associated with higher dosage: _____

E. Program Implementer (select all that apply)

- E1. Research Staff
- E2. School Specialty Staff
- E3. Teachers
- E4. Educational Assistants
- E5. Parents
- E6. College Students
- E7. Peers
- E8. Other
- E9. Unknown/insufficient information provided

F. Characteristics of the Intervener

- F1. Highly similar to target participants on key variables (e.g., race, gender, SES)
- F2. Somewhat similar to target participants on key variables
- F3. Different from target participants on key variables

G. Intervention Style or Orientation (select all that apply)

- G1. Behavioral
- G2. Cognitive-behavioral
- G3. Experiential
- G4. Humanistic/interpersonal
- G5. Psychodynamic/insight oriented
- G6. Other (specify): _____
- G7. Unknown/insufficient information provided

H. Cost Analysis Data (select G1 or G2)

- H1. Unknown/insufficient information provided
- H2. Information provided (if information is provided, answer H2.1)

H2.1 Estimated Cost of Implementation: _____

I. Training and Support Resources (select all that apply)

- I1. Simple orientation given to change agents
- I2. Training workshops conducted

of Workshops provided _____

Average length of training _____

Who conducted training (select all that apply)

- I2.1 Project Director
- I2.2 Graduate/project assistants

I2.3 Other (please specify):
Head Start workers
I2.3 Unknown

- I3. Ongoing technical support
- I4. Program materials obtained
- I5. Special Facilities
- I6. Other (specify):

J. Feasibility

J1. Level of difficulty in training intervention agents (select one of the following)

- J1.1 High
- J1.2 Moderate
- J1.3 Low
- J1.4 Unknown

J2. Cost to train intervention agents (specify if known): _____

J3. Rating of cost to train intervention agents (select one of the following)

- J3.1 High
- J3.2 Moderate
- J3.3 Low
- J3.4 Unknown

Summary of Evidence for Group-Based Design Studies

Indicator	Overall Evidence Rating NNR = No numerical rating or 0 - 3	Description of Evidence Strong Promising Weak No/limited evidence or Descriptive ratings
General Characteristics		
General Design Characteristics	NNR	N/A
Statistical Treatment	NNR	N/A
Type of Program	NNR	N/A
Stage of Program	NNR	N/A
Concurrent/Historical Intervention Exposure	NNR	N/A
Key Features		
Measurement	2	Promising
Comparison Group	2	Promising
Implementation Fidelity	2	Promising
Site of Implementation	1	Weak
Follow Up Assessment Conducted	N/A	N/A

Descriptive or Supplemental Criteria		
External validity indicators	NNR	N/A
Length of Intervention	NNR	N/A
Intensity/dosage	NNR	N/A
Dosage Response	NNR	N/A
Program Implementer	NNR	N/A
Characteristics of the Intervener	NNR	N/A
Intervention Style/Orientation	NNR	N/A
Cost Analysis Data Provided	NNR	N/A
Training and Support Resources	NNR	N/A
Feasibility	NNR	N/A

Total score: 7

Averaged score: 1.75