

Critical Review: Does parent-child shared book reading improve oral language skills in low-income preschoolers?

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This critical review examines the evidence regarding the effects of parent-child shared book reading on oral language skills in preschoolers from low-income families. A literature search was completed and yielded the following types of articles: mixed (between and within) experimental design, meta-analyses, and randomized control trial. Overall, the results indicate that shared book reading with low-income preschoolers and their parents is less effective than with children from middle- to high-income backgrounds. Clinical implications are discussed.

Introduction

Speech-language pathologists have taken an increasingly proactive role in promoting preliteracy development for children at risk for later literacy and language-related difficulties (American Speech-Language Hearing Association, 2001). Well-practiced scaffolded routines, such as shared book reading, allow young children to engage in verbal interactions often beyond their own language abilities (Justice & Ezell, 1999). Shared book reading also provides an interactive context that is authentic, meaningful, and motivating to preschoolers (Watkins & Bunce, 1996) and allows children to gain knowledge about oral and written language (Justice & Pullen, 2003). Oral language skills are essential for extracting meaning from text and from teachers' oral instructions (Bierman Domitrovich, Nix, Gest, Welsh, Greenberg, Blair, et al., 2008) and in novel experiences with expanded discourse patterns.

The preschool years offer a brief and critical window of opportunity to develop sophisticated oral language skills, after which time the rapid rate of oral language growth begins to slow (Pullen & Justice, 2003). Preschool children who are experiencing difficulties in emergent literacy development are at an increased risk for entering elementary school without an adequate literacy foundation and rarely catch up with their peers (Justice & Pullen, 2003).

Vulnerable children must overcome diverse challenges to become successful communicators

(Justice & Pence, 2004). Children from low-income backgrounds in particular, are at risk for both oral language and reading difficulties (Lonigan & Whitehurst, 1998). Reese, Leyva, Sparks, and Grolnick (2011) hypothesized that dialogical reading, a form of shared reading, is an effective way to increase children's expressive vocabulary, but that the effects are mediated by the quality of the book reading interaction, the child's age, language competence, and socioeconomic background. This review will examine the effects of shared book reading intervention on the oral language skills of low-income preschoolers.

Objectives

The primary objective of this critical review is to investigate if parent-child shared book reading interventions result in enhanced oral language development in low-income preschoolers, as measured by vocabulary size, comprehension skills, utterance length, and/or narrative complexity. This intervention is hypothesized to be an economical and practical measure by which parents with low incomes can reduce the incidence of language and literacy difficulties in their children. The secondary objective is to provide guidance to speech-language pathologists as to whether parents from low-income backgrounds should engage in shared book reading as a preventative measure against oral language and literacy delays.

Methods

Search Strategy

The computerized databases PsychINFO, ProQuest Education, PubMed, ERIC, and SCOPUS were searched using the following criteria: [((shared) OR (dialogical) OR (interactive) OR (storybook) AND (reading)) AND (preschool*) AND ((vulnerable) OR (low income) OR (at-risk) OR (low socioeconomic status)) AND (language)]. In addition, relevant articles referenced in acquired articles were sought.

Selection Criteria

The papers included in this critical review were required to involve a shared book reading intervention with preschoolers from low-income backgrounds and to be implemented by one of the child's parents or primary caregivers.

Data Collection

Results of the literature search using the aforementioned parameters yielded the following articles: mixed (between and within) experimental design (1), meta-analyses (2), and a randomized control trial (1).

Results

Study #1: Mixed (between and within) design

Lonigan and Whitehurst (1998) examined the effects of dialogical reading with children from low-income families who had below-average oral language skills. Dialogical reading requires the adult to ask open-ended questions, to expand upon the child's utterances, and to follow the child's interest as the child will learn to be the storyteller.

They recruited a sample of 91 children, ranging from 3 to 4 years of age, from child care centres in Nashville, Tennessee. Families were English-speaking and qualified for public subsidy of child care costs. Children were randomly assigned to 1 of 4 experimental conditions: teacher-only, combined teacher and parent, parent-only, and a no-treatment control condition. Both teachers and parents were trained in dialogical reading through the use of videotape training. Analyses were conducted at the level of centre compliance, i.e., high versus low, since there were significant differences between centres with respect to the frequency of sessions being conducted and the relationship with outcome.

Standardized tests of oral language were administered, i.e., Expressive One Word Picture Vocabulary Test and the Illinois Test of Psycholinguistic Abilities, and a subset (n = 66) also participated in a book reading interaction. The participants' verbal productions during a book-reading re-assessment were analyzed using a 4 (group) x 2 (centre compliance) multiple analysis of covariance (MANCOVA). Children in high compliance centres scored higher on mean length of utterance (MLU), number of different words, and the standardized measures of expressive language. Combined intervention groups produced more words overall, a higher diversity of words, and more verbs than the control group.

Within high compliance centres, children who were exposed to dialogical reading both at home and school benefited more than those exposed just at home or just at school. Conversely, children in low compliance centres did not benefit from school-based dialogical reading, but did benefit from the home intervention.

Lonigan and Whitehurst concede that while frequency of reading is the most straightforward explanation of compliance, there may be other variables at work which have not been measured. Another limitation is that only 60% of the home reading logs were returned. Additionally, follow-up data would have been useful to determine the longevity of the effects. Lonigan and Whitehurst also did not assess the frequency of parent-child reading in the control group, based on the assumption that the frequency of shared reading is relatively low in low-income households. As well, the majority of participants, i.e., 85%, did not complete all key measures. Only 66 of the original 91 children, i.e., 72%, participated in the book reading re-assessment. Thus, posttest results may not be representative of this study's original sample.

An evaluator and a coordinator from Even Start, an intergenerational family literacy project, suggest that Whitehurst and Lonigan should have assessed the degree of parent compliance in addition to compliance by the child care centres (Coe & Shelby, 1998). The education levels of the parents varied from those with bachelor degrees to those who had not completed high school. They also

question what procedures were used to control for cultural bias in reading materials and assessment tools, since 91% of the participants were African American. Also, the parent self-report measures may not be reliable since low income parents often give socially desirable answers (Coe & Shelby, 1998).

Overall this study provides Level II evidence for the impact of dialogical reading in the home environment. Although this study is well-formulated and the statistical manipulations appear valid, its methodological validity is questionable. Overall, the evidence is suggestive, thus clinical implications may be limited.

Study #2: Meta-analysis

Mol, Bus, de Jong, & Smeets (2008) conducted a meta-analysis to investigate if dialogical reading increases children's vocabulary size relative to typical shared reading. Sixteen studies were evaluated to test five hypotheses, two of which are pertinent to this review. Firstly, is the age at time of dialogical reading intervention associated with outcome measures? Secondly, is dialogical reading more effective in young children at risk for language and literacy impairments compared to those children not at risk?

A moderator analysis was conducted to assess the first hypothesis, comparing whether dialogical reading had a greater impact on 2- to 3-year-old children than 4- to 5-year-old children. Results from the studies examined showed that preschool children benefited more from dialogical reading intervention than did kindergarten children with respect to the overall expressive vocabulary outcomes.

For the second hypothesis, risk status was based on income or maternal education because not all studies clearly reported socioeconomic status levels. At risk families had low-incomes, received governmental support, or had less educated mothers. Mol et al. found that the effect of dialogical reading significantly differed between those children at risk and those not at risk. There was a moderate effect size for children not at risk and a small effect size for children at risk. Thus, those children at risk for language and literacy impairments benefited less from dialogical reading

than those not at risk. According to this research, literacy intervention is most effective when it occurs early and is tailored to the socio-economic status level of the preschooler.

This meta-analysis provides Level II+ evidence. There is transparency in the selection criteria, coding of studies, and procedures. There was also high inter-rater agreement (96%), which minimizes the potential for subjective bias. The authors noted that they were unable to test for publication bias because only 2 unpublished studies were located. Although there were a limited number of studies which met the set criteria, the overall validity of this meta-analysis is suggestive to compelling. Thus, this study is clinically important for speech-language pathologists working with preschoolers at risk for language and literacy difficulties.

Study #3: Literature Review & Meta-analysis

Manz, Hughes, Barnabas, Bracaliello, and Ginsburg-Block (2010) conducted a descriptive literature review and meta-analysis to determine the extent to which current evidence-based literature for emergent literacy intervention in the home is applicable to preschoolers and families of ethnic minority and low-income backgrounds.

Selection criteria included published articles which evaluated an emergent literacy intervention in the preschool population, between 2 to 5 years of age, and included a family involvement component. The meta-analysis included 14 studies of quasi-experimental or experimental research design, 10 of which examined dialogical reading. The effect size for dialogical reading studies is consistent with what was previously reported by Mol et al. (2008), with oral language being the most studied outcome amongst the studies. An effect size of $d = 0.33$ ($p < 0.001$) for the combined 14 studies suggest a statistically significant, small effect for family-based emergent literacy intervention. As there was significant heterogeneity, a general effect size may not accurately represent the ways that these interventions benefit preschoolers.

An ANOVA was used to explore the effectiveness of these studies with respect to expressive and receptive language, phonological awareness, letter knowledge, concepts in print, and a general

indicator of reading. No statistically significant differences between outcomes were found.

Results showed negligible effect sizes for interventions when applied to ethnic minority and low-income children. There was a moderate effect size for expressive language. Home-based interventions produced the largest effect size compared with the school setting or combination of home and school.

Interestingly, only 5 of the 31 studies (16%) reported caregiver literacy ability and none of the studies had an adult literacy component in their intervention. The authors fittingly noted that potential literacy weaknesses may have impacted the caregivers' full or effective involvement in the emergent literacy intervention. Manz et al. also found that participant demographics were commonly neglected in both the description and formation of samples and in the data analysis, e.g., ethnicity and native language. As these fundamental characteristics were only reported in half of the 31 studies examined, this limits the generalization of the meta-analysis findings.

Further limitations of the studies in this meta-analysis include relatively few empirically-supported emergent literacy intervention studies for low-income, ethnic minority or linguistically-diverse families of young children. As well, emergent literacy is a multi-faceted concept, which is not captured by a full array of psychometrically-strong measures in the studies reviewed. More than half of the studies reviewed were based upon investigator-created measures or checklists in which reliability and validity information was not reported.

Strengths of the meta-analysis and literature review include a clearly defined rationale, a comprehensive search for relevant studies, and high inter-rater agreement, i.e., 93%. Manz et al. also provide guidelines for future research, including the need to enhance the external validity of family-based emergent literacy interventions. Thus, this meta-analysis provides Level II+ evidence with compelling validity and clinical importance for speech-language pathologists, as discussed later.

Study #4: Randomized Control Trial

Goldfeld, Napiza, Quach, Reilly, Ukoumunne, and Wake (2011) conducted the first population-based randomized controlled trial (RCT) which demonstrates the effectiveness of an early-literacy promotion program on preschoolers' language development. The Let's Read trial targeted children living in relatively disadvantaged neighbourhoods in Melbourne, Australia.

Of the 630 families who were recruited, 552 were retained to outcome. Cluster randomization occurred within each local government area. Children in the control group (n=265) received standard care by their nurses, including a brief, standardized-language promotion tip sheet given to their parents during the developmental visits. Parents of the children in the intervention group (n=365) received training through maternal and child health nurses who modeled shared reading techniques using adult education strategies and provided free age-appropriate picture books. Feedback was delivered at three points in time: when children were between 4 and 8 months, and again at 12 and 18 months of age. A fourth session (at 3.5 years) is forthcoming.

A linear regression model was used to implement comparisons. Tests of interaction were used to determine whether the intervention's impact on vocabulary and communication scores differed based on caregiver's level of education. Children in the intervention group whose mothers did not complete school knew 15 fewer words (CI = 4.7-25.2) than those children whose mothers were educated to at least school completion.

Overall, results found similar scores on tests of expressive vocabulary, overall communication, and home literacy between the control and intervention groups. Therefore, this study does not suggest that shared book reading through the Let's Read trial benefited emergent literacy skills of preschoolers, despite a high retention rate and reported parent satisfaction.

Goldfeld et al. hypothesize that an absence of effect could be due to issues regarding: the program, e.g., insufficient intensity; the sample, e.g., families may already have had access to resources promoted in the trial; or "sleeper

effects”, in which effects will emerge in the later assessment at four years of age.

A limitation of this study is that parents who did not speak English were excluded, limiting generalizations to second-language learners. Although outcome measures were parent-reported, this is not a weakness since they have strong and expected associations in many published studies and are of practical merit.

Well-designed RCTs such as this one provide high level of evidence as randomization minimizes the effects of confounding variables expected in the population. The health care professionals who assisted in delivering the intervention were fully blinded which controls for bias and allows for comparison between treatment and control groups. This study provides Level I+ evidence for the ineffectiveness of low-intensity shared book reading interventions delivered by parents of low-income backgrounds to their young children. The overall clinical importance of these interim results is compelling and it will be important to consider if there are language, literacy, social, or emotional benefits for these children at 4 years of age.

Discussion and Recommendations

Lonigan and Whitehurst’s Level II study (1998) was the only one in this review whose results supported the efficacy of a form of shared book reading amongst low-income preschoolers. This study also presented with various methodological concerns, including lack of follow up data.

Mol et al. (2008) presented compelling Level II+ evidence that shared-book reading interventions are most effective when they occur early and differently than with preschoolers from higher socio-economic status levels. Manz et al. (2010) also had compelling Level II+ evidence which found shared-book reading interventions to be less effective amongst low-income and ethnic minority preschoolers than with preschoolers from higher-income backgrounds. Similarly, Goldfeld et al. (2011) demonstrated with Level I+ evidence that a low-intensity shared book reading intervention was ineffective when delivered by parents of low-income backgrounds to their young children.

Therefore, more recent studies with higher levels of evidence suggest that, in general, shared book reading with low-income preschoolers does not improve oral language skills as effectively as seen with preschoolers from higher income backgrounds and not when administered at a low intensity before the age of 2 years.

One possibility for the results seen in this review may be because parents are required to have a strong educational background to use shared reading effectively. Another possibility, as hypothesized by Goldfeld et al. (2011) and proponents of the early childhood Head Start program (Ludwig & Phillips, 2008), is that there may be long-term benefits associated with these language interventions which will become evident in later school years.

Payne, Whitehurst, & Angell (1994) state that interventions that attempt to enhance the home literacy environments of low-income children will only be successful when the behaviour targeted by the interventions is feasible within an environment of poverty. Thus, the results reflected in this review may also be due to a lack of sensitivity to the issues unique to families of low-income backgrounds, such as values, routines and available resources (Manz et al., 2010).

Further research should focus on:

1. Investigating the relationship between parents’ level of education and its impact on the home literacy environment.
2. Conducting prospective studies to assess oral language skills at different milestones in a preschooler’s language and literacy development, as is being done by Goldfeld and colleagues.
3. Investigating the effect of a shared book reading intervention that also targets parental literacy, in order to prevent potential literacy weaknesses from impacting the participants’ full involvement in the intervention.
4. Following up with parents to see how frequently and accurately they carried out the shared book reading intervention.

Clinical Implications

Clinicians need to be aware of potential barriers when working with families from low-income backgrounds. Research has shown that if book reading is unpleasant then the interaction will not be effective (Bus, van Ijzendoorn, & Pellegrini, 1995). Therefore, it is critical that speech-language pathologists ensure parents of low-income backgrounds have the tools needed to provide an enjoyable and effective shared book reading experience before recommending they engage in this activity to improve language and/or literacy skills. Furthermore, Manz et al. (2010) recommend that clinicians establish trusting and genuine relationships with families early on to ensure reciprocal communication regarding goals and mutually-acceptable strategies to enhance the child's literacy and language skills.

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