

Critical Review:

Is an early intervention program that embeds explicit phonological awareness instruction in shared reading, effective in enhancing the early literacy skills of preschoolers from lower socioeconomic backgrounds?

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This critical review examines the evidence regarding early phonological awareness intervention embedded in shared reading and its effects on emergent literacy skills for children from low-income backgrounds. Study designs include a mixed randomized clinical trial, a single-subject study, and a nonrandomized clinical trial. Overall, research findings indicate that providing explicit phonological awareness instruction during storybook reading may be beneficial, but warrants caution due to sparse evidence. Recommendations for future research and clinical implications are also discussed.

Introduction

Emergent literacy skills, including phonological awareness, print concepts, alphabet knowledge and literate language, serve as a foundation for later success in acquiring reading and writing skills (Justice & Kaderavek, 2004; Whitehurst & Lonigan, 1998). Although children begin to develop these skills throughout the preschool period, many risk factors become obstacles for successful acquisition of literacy. Indeed, numerous studies have identified children from low socioeconomic backgrounds to be at high risk for developing later reading disabilities (Catts et al., 2002; Duncan & Seymour, 2000; Locke et al., 2002; and McCardle et al., 2001). Children from lower income backgrounds have been found to have less well-developed emergent literacy skills compared to their higher-income peers, as they lack informal experience of books and print before exposure to formal literacy instruction (Aram & Biron, 2004; Lefebvre et al., 2011; McIntosh et al., 2007; Nancollis et al., 2005). This body of evidence therefore suggests the critical importance of addressing this population's needs prior to school entry in order to maximize academic success.

While there is a large body of evidence that supports the use of phonological awareness training (Byrne & Fielding-Barnsley, 1991; O'Connor et al., 1993, and Roberts, 2003) and dialogic/shared storybook reading (Arnold et al., 1994; Huebner, 2000; Justice & Ezell, 2002; and Lonigan & Whitehurst, 1998) to improve targeted skills, there is minimal evidence regarding the efficacy of targeting both skills simultaneously.

Indeed, interventions that have been developed and employed to enhance emergent literacy in young children have thus far focused on an embedded or

explicit approach. Whereas embedded approaches highlight the value of children's "self-initiated, naturalistic, and contextualized interactions with oral and written language" (Justice & Kaderavek, 2005, 204), explicit models make use of structured and sequenced clinician-directed instruction to improve discrete skills. In the context of early intervention, it is reasonable to posit that using an integrated framework (embedding explicit phonological awareness training in dialogic or shared storybook reading) may prove to be more comprehensive and efficient than traditional treatment approaches.

Objectives

The primary objective of this paper is to provide a critical review of the existing literature on the effects of embedding phonological awareness training within reading activities on the emergent literacy skills of low-income preschoolers. The secondary objective is to provide evidence-based recommendations concerning the clinical value of these findings, as well as suggestions for additional research.

Methods

Search Strategy

Computerized databases, including PubMed, PsycINFO, Scopus, and ProQuest, were searched using the following key terms: ([Dialogic read] OR [Shared storybook read]) AND ([Phonological Awareness]) AND ([Low-income] OR [SES]) AND ([Preschool]). Reference lists in acquired articles were examined for additional information.

Selection Criteria

The studies selected for inclusion in this critical review paper were required to investigate the impact of combining explicit phonological awareness training with dialogic or shared storybook reading among disadvantaged preschoolers.

Data Collection

Results of the literature search yielded three articles congruent with the aforementioned selection criteria: mixed randomized clinical trial (RCT), single-subject study, and non-randomized clinical trial.

Results

Lonigan et al. (2013) examined the specific and combined effects of interventions designed to promote early literacy skills in 324 low-income, non-reading preschool children. This evidence-based level 1 study utilized a randomized mixed clinical trial design and included five intervention groups, of which three were of interest to the present study (#1, 3, 4): (1) dialogic reading plus phonological awareness training; (2) dialogic reading plus letter knowledge training; (3) dialogic reading plus a combination of phonological awareness and letter knowledge training; (4) standard shared reading plus a combination of phonological awareness and letter knowledge training; or (5) only ongoing classroom curriculum. Intervention was delivered in small groups, 5 days/week throughout the school year. The emergent literacy skills (vocabulary, phonological awareness, letter knowledge, and text decoding) of participating children were appropriately measured at pre-test, mid-year, and post-test using a combination of standardized tools and word lists developed by MacLean et al. (1987).

Analyses of variance (ANOVA) were presumably used (statistical measures used were unidentified) in order to compare group differences post-treatment. Specific effects of interventions were observed: each intervention had a statistically significant impact on measures of their respective domains. However, combining phonological awareness instruction with reading did not result in significant gains in literacy skills beyond what was achieved in the other groups.

Overall, this study included a sound rationale and appropriately identified methods and participant criteria. However, despite using a large sample, treatment fidelity data were not provided, and the intervention program and materials used were not described in sufficient detail for replication. Specifically, the authors failed to provide information about the tools used to measure phonological awareness skills; information about reliability was thus unavailable. Furthermore, information about statistical measures employed in data

analysis was not provided, as were detailed analyses about variables of interest. Although the latter (phonological awareness intervention and reading) were included in this study, the reported analyses did not investigate all aspects of the hypothesis. In fact, contrasting groups that received a combination of reading and explicit phonological awareness training would have provided a fuller exploration of the data.

Based on these factors, this study provides only indirect evidence for combining reading and phonological awareness, in that there is suggestive evidence that treating each one can lead to improvements in this area.

Ziolkowski & Goldstein (2008) employed a multiple-baseline across-skills single subject design to investigate the effect of explicit phonological awareness intervention embedded in a 13-week shared book program (3x/wk in the classroom) for 13 low-income preschoolers with language delays. Participants received two intervention strategies in a random, counterbalanced sequence. The first strategy involved direct instruction and modeling of rhyming pairs, followed by a sentence completion task. The second strategy focused on targeting initial sounds or alliteration. Children progressed to the second intervention strategy when experimental effects were shown for the first literacy skill targeted. The first skill was then evaluated for maintenance. All sessions were videotaped for fidelity and monitoring purposes.

Three standardized tools and one informal assessment procedure were administered weekly prior to and during intervention in order to measure rhyming and alliteration skills. Visual inspection of graphs and analysis of effect sizes revealed that all 13 children demonstrated improvements in rhyming and alliteration. Indeed, stable baseline performances that were typically low were followed by enhanced phonological awareness skills only following alliteration and rhyming interventions were introduced, respectively. Relatively large effect sizes were calculated for these changes. Furthermore, all 13 children maintained these skills, which did not drop below intervention gains. However, average intervention performance largely remained below the normative level for alliteration and rhyming.

Although the study employed a relatively small sample, the authors used appropriate inclusion criteria (including hearing status) and ensured that instructions remained consistent/accurate during sessions. The authors reported high inter-rater reliability and high treatment fidelity for the rhyme intervention (100%) and for the initial sound target intervention (mean of 94.8%). Finally, the materials, settings, strategies, and outcome

measures were described in sufficient detail for replication.

However, Ziolkowski & Goldstein did not evaluate the impact of the shared reading intervention on pre-literacy skills, which would have been appropriate for the present review. Furthermore, the authors employed outcome measures that were highly related to the phonological awareness tasks. For these reasons, it is difficult to evaluate the study with regards to the clinical question; this study provides equivocal evidence for improving pre-literacy skills with a combined therapy approach.

Lefebvre et al (2011) utilized a nonrandomized clinical trial to examine the effects of two shared storybook reading (SSR) interventions on the language and emergent literacy skills of 40 low-income, French-speaking preschoolers. Participants were randomly assigned to a control group (language and print awareness intervention) or an experimental group (language, print awareness, and phonological awareness intervention). SSR sessions were provided in small groups, 4x/wk in the classroom over a 10-week period. A group of high-income preschoolers who did not receive any intervention was also included for comparison. Books were chosen based on several appropriate criteria.

Four criterion-referenced instruments were used to measure language and emergent literacy skills throughout the study, as they are more appropriate for monitoring progress in specific areas (compared to norm-referenced tests). These measures were administered to all children 2-3 weeks prior to the intervention and within 2-3 weeks following intervention. Reliability and validity for these tools were not available; however, the authors reported high (96%) inter-rater reliability and high treatment fidelity (95%).

Appropriate one-way between-groups analyses of covariance (ANCOVA) revealed higher post-test phonological awareness scores for children in the experimental group compared to their control group peers. Vocabulary and print awareness scores were not significantly different between the two low-income groups. The experimental group also outperformed their high-income peers in their vocabulary, print awareness, and phonological awareness skills.

Although the small sample size restricts the generalizability of the results, participants were chosen based on appropriate criteria (including hearing status). The authors also included non-participating children in the SSR sessions to keep the classrooms intact, which increased the external validity of the study. A sound

rationale was provided for this study, and the materials and procedures were described in sufficient detail for replication. One limitation of this study is that few children with language disorders in the sample were receiving intervention services in Speech-Language Pathology simultaneously, which might have also contributed to their progress during the study.

However, based on the strengths of this study, Lefebvre et al. provide compelling evidence for incorporating phonological awareness training in shared reading activities.

Discussion

In general, there is very little evidence available to support combining phonological awareness training with dialogic or standard shared reading for disadvantaged preschoolers. Indeed, the present review provides limited compelling evidence for the clinical question, and related evidence suggests the effectiveness of each intervention in isolation.

Several limitations were identified across the three studies, which reduced the strength of the available research. Studies were difficult to compare due to differences in the type and use of: materials (books), treatment settings (pull-out or in-class sessions), outcome measures, and instructions. Inclusion criteria also varied across studies, as did treatment designs. Overall, the combination of these factors with relatively small samples reduced the generalizability of the results with regards to the clinical question.

More importantly, it is necessary to reflect on the possible reasons for the lack of research in this area of interest. First, interest in this question may likely be reduced by the effectiveness of domain-specific interventions, as evidence in the literature supports the use of this approach (i.e., perhaps they are considered to be the gold standard). Although the treatment activities discussed in this review are highly complementary, it is possible that they may not be as effective or cost- and time-efficient when used together. Second, research in this area may be limited due the lack of universality in defining this type of approach. Specifically, there may be ongoing, narrative-based research addressing this question, but different terms may be used to characterize the intervention, thus rendering the search for evidence more difficult.

Thus, the present clinical question remains open for further investigation. Based on the discussion, future research considerations would include the following:

- a. A precise research question, with consistent vocabulary to define the approach employed;

- b. The use of appropriate and reliable outcome measures that assess pre-literacy skills beyond phonological awareness;
- c. Incorporating larger samples in order to increase the confidence of clinical implementation;
- d. An investigation of the long-term effects of combined intervention on emergent literacy skills, beyond preschool years.

Clinical Implications

The present review highlights the importance of early intervention in specific domains for children who are at risk for later reading-related difficulties. Although there is only limited compelling evidence for targeting different skills at once, the clinical importance is compelling. Using a combined approach makes ‘clinical sense’, as it provides a low-cost and highly interactive alternative to structured, domain-specific interventions. With proper guidance, caregivers may also actively participate in the intervention in and out of the clinical environment. However, this approach warrants clinical consideration of implementation with some caution, due to sparse evidence. An evidence-informed approach is therefore recommended.

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