

Critical Review: Effects of shared storybook reading on phonological awareness skills in preschool-aged children at risk for reading disabilities.

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This critical review examines whether shared storybook reading may be used to improve phonological awareness skills in preschool-aged children at risk for later reading disabilities. A literature search using computerized databases was completed resulting in four articles meeting the inclusion criteria. There were two randomized clinical trials, a quasi-experimental design, and a multiple baseline design. The articles were evaluated using a critical appraisal template that considered study design, methodology, and level of statistical evidence. Overall, the research suggests that a shared storybook reading approach to phonological awareness intervention may be effective for preschool-aged children at risk for later reading disabilities; however, findings were inconsistent across studies due to variability regarding the selected intervention approaches and administrators.

Introduction

Literacy is fundamental to the human experience. Not only is literacy necessary for education and career development, but it is also essential for community participation, activities of daily life, entertainment, and travel. Early literacy refers to the skills children must learn in order to read and write. Without these foundational skills, children are likely to fall behind and unlikely to catch-up to their peers over time (Lonigan, Anthony, Bloomfield, Dyer, & Samwel, 1999).

According to Ziolkowski and Goldstein (2008), children with language delays, as well as children who come from low-income households are at high risk for developing reading disabilities. One third of preschool-aged children with language impairment experience reading problems as an adolescent (Justice, Kaderavek, Bowles, & Grimm, 2005).

Research has identified phonological awareness (PA) as a specific area of weakness for individuals with reading disabilities (Justice et al., 2005). PA refers to one's ability to recognize and manipulate the sound units of a language. Unfortunately, current treatment approaches for PA are highly decontextualized and thus, less likely to promote generalization (Lefebvre, Trudeau, & Sutton, 2011).

Shared storybook reading (SSR) refers to the interaction that takes place between children and adults during book reading. It is a more holistic approach to intervention that utilizes authentic contexts for literacy learning. SSR is also a flexible and inexpensive approach that may be used in a range of settings with a variety of partners (Lefebvre et al., 2011). In the past, SSR has been used as a treatment approach to improve language, increase vocabulary, and teach print awareness skills to preschool-aged

children (Ziolkowski and Goldstein, 2008). However, there is limited research evaluating SSR as an approach for addressing PA skills.

SSR is a versatile approach that is easy to implement. It is also considered enjoyable by children and their reading partners. Subsequently, SSR holds promise as a therapeutic approach for targeting PA skills in preschool-aged children who are at risk for reading disabilities.

Objectives

The primary objective of this paper is to critically evaluate existing literature to determine whether SSR may be used to improve PA skills in preschool-aged children between two and six years of age who are at risk for later reading disabilities.

Methods

Search Strategy

Computerized databases including PsychInfo and CINAHL, as well as Western Libraries Database were searched using the following search strategy: [(phonological awareness) AND ((shared reading) OR (book reading)) AND (preschool) AND ((language impairment) OR (language delay))]. The search was limited to articles written in English between 1999 and 2019. Reference lists of articles were also used to obtain relevant studies.

Selection Criteria

Studies selected for inclusion in this review included preschool-aged children between two and six years of age who were at risk for reading difficulties due to language impairment or other variables. Studies were required to address the development of phonological awareness skills through any shared book reading intervention.

Data Collection

Results of the literature search yielded four articles that met the selection criteria. Results included two randomized control trials (Justice et al., 2005; Lonigan et al., 1999), one quasi-experimental design (Lefebvre et al., 2011), and one multiple baseline design (Ziolkowski & Goldstein, 2008).

Results

Randomized Clinical Trials

Randomized clinical trials (RCTs) are considered the “gold standard” for evaluating the efficacy of therapeutic interventions. RCTs eliminate potential bias from external factors that impact treatment outcomes. RCTs are considered less appropriate for studies with small sample sizes (Ebbels, 2017). An RCT provides the strongest level of evidence.

Justice et al. (2005) employed a mixed randomized clinical trial to determine the effectiveness of a parent implemented PA intervention embedded within the context of SSR for 22 preschool-aged children with specific language impairment (SLI). Participants were randomly assigned to either the experimental group that targeted PA or the comparison group that targeted vocabulary building. Participants received four intervention sessions per week for ten weeks with assessment sessions before and after treatment. Results indicated that pre- and post-test scores for rhyme and alliteration were not significantly different for participants in the comparison group. Participants in the experimental group demonstrated significant changes for rhyme, but not for alliteration. There was a significant time effect for rhyme, but not for alliteration, as well as a time by group interaction that favoured the experimental group.

Participant inclusion criteria were well specified and appropriate for the design. Specifically, participants were required to meet the criteria for a diagnosis of SLI. Participants were randomly distributed between the two experimental conditions and there were no significant differences between these groups on the basis of chronological age, oral language proficiency, or nonverbal intelligence. Researchers were not blind to participant assignment, which may have led to observer bias.

All procedures and testing measures were clearly and thoroughly described to allow for future replication. Parents were provided with training regarding task

delivery and encouraged to use their own style during the interaction, which likely contributed to improved external validity and patient compliance. However, parents did not receive training regarding appropriate scaffolding behaviours, which may have reduced the reliability of the intervention outcomes. Researchers opted to use criterion-referenced measures. They were adapted from existing measures that are reasonable, reliable, and valid. Researchers also opted not to include a no-treatment control group; subsequently, it was unclear whether changes in alliteration skill were linked to SSR or developmental maturation.

A paired-samples t-test was used to compare pre- and post-test data for individual participants. An alpha of .10 was used to account for the small sample size. A repeated-measures multivariate-analyses of variance (MANOVA) was also used to compare the magnitude of change across the two groups. Statistical evidence and statistical power are acceptable for this type of study.

Despite lacking a no-treatment control and including a small sample size and parental style variations, Justice et al. (2005) offer suggestive evidence for a parent implemented PA intervention embedded within the context of SSR to target rhyme detection and production in preschool-aged children with SLI.

Lonigan et al. (1999) employed a between-groups randomized clinical trial to determine the effects of two SSR interventions on the development of early literacy skills in 95 preschool-aged children from low-income households. Participants were randomly assigned to the typical shared reading group, dialogic reading group, or no-treatment control group. During the first condition, the interventionist would read a book, comment on pictures, and answer questions. During the second condition, the interventionist would ask questions or provide information, while the child took the lead. Participants received five intervention sessions per week for six weeks with assessment sessions before and after treatment. Results indicated that increases in alliteration scores were greater for the two treatment groups combined compared to the no-treatment group, while there was no significant difference between the two treatment groups. When compared to the no-treatment group, increases in alliteration scores were significantly greater for the typical shared reading group and not significantly greater for the dialogic reading group. There was a significant group by time interaction that favoured the combined treatment group. While performance on blending and elision tasks improved over time, performance did not differ between groups.

Participant inclusion criteria were not well specified, but the sample size was the largest of the four studies. Participants were randomly distributed between the three experimental conditions and there were no significant differences between these groups on the basis of chronological age, standardized language performance, or phonological sensitivity. Researchers were not blind to participant assignment, which may have led to observer bias.

All procedures and testing measures were clearly and thoroughly described to allow for future replication. Undergraduate volunteers were appointed to conduct the intervention sessions and received training on dialogic reading approaches. While this improved the consistency of administration, the generalizability of the results is subsequently limited. The four measures employed to assess rhyme and alliteration ability were adapted from existing measures that are reasonable, reliable, and valid. Researchers chose to include a no-treatment control group to account for improvements related to developmental maturation.

A 3x2 repeated-measures analysis of covariance (ANCOVA) was used to compare the relative effects of the two SSR interventions. This level of statistical analysis is acceptable for this type of study.

Despite lacking inclusion criteria and evidence for long-term maintenance, as well as only including one type of interventionist, Lonigan et al. (1999) provide suggestive evidence for using typical shared book reading to target alliteration skills in a classroom setting for preschool-aged children from low-income households.

Quasi-Experimental Design

A quasi-experimental design is appropriate in the event that randomization cannot occur at the level of the individual. In these instances, randomization may take place at another level (e.g. classroom). Therefore, external factors may not be adequately balanced between groups (Ebbels, 2017). A quasi-experimental design is considered to provide a moderately strong level of evidence.

Lefebvre et al. (2011) employed a quasi-experimental pre-test/post-test design to determine the impact of two SSR interventions on language, print awareness, and phonological awareness skills in 30 preschool-aged children from low-income households and compare these findings to 12 preschool-aged children from higher income households who did not receive intervention. The 30 participants from low-income households were randomly assigned to either the

experimental group that targeted language, print awareness, and PA or the control group that targeted language and print awareness only. The comparison group included the other 12 participants. Participants received four intervention sessions per week for ten weeks with assessment sessions before and after treatment. Both participants in the experimental and control groups received dialogic reading, vocabulary facilitation, and print referencing strategies, while only participants in the experimental group received PA facilitation strategies that incorporated non-words into reading to address nine areas of PA skills. Results indicated that participants in the experimental group performed significantly better on PA tasks than participants in the control or comparison groups.

Participant inclusion criteria were well specified and appropriate for the design. Participants from high-income households were excluded if they had language delays or if they had received speech and language services, while participants from low-income households were not excluded on the basis of these criteria to improve external validity. Participants were randomly distributed according to classroom and there were no significant differences between these groups on the basis of frequency of parents reading, frequency of children requesting reading, and the number of children's library visits. Participants from higher income households were found to have increased home language exposure and more books in the home than children from low-income households. Researchers remained blind to classroom assignment in order to avoid observer bias.

All procedures and testing measures were clearly and thoroughly described to allow for future replication. Only one speech-language pathologist (SLP) was employed as an interventionist. While this improved the consistency of administration, the generalizability of the results is subsequently limited. Researchers opted to use criterion-referenced measures over norm-referenced tests due to language constraints. These measures were reasonable, reliable, and valid. In order to reduce lexical and semantic biases, researchers decided to use non-words for the PA intervention; subsequently, findings may not generalize to real words.

A three one-way between-groups ANCOVA was used to compare the relative effects of the two SSR interventions. This level of statistical analysis is acceptable for this type of study.

Despite limited evidence regarding generalizability and long-term maintenance, Lefebvre et al. (2011) provided highly suggestive evidence for utilizing PA

facilitation strategies in the context of SSR in a classroom setting for preschool children from low-income households.

Multiple Baseline Design

A multiple baseline design is appropriate when interventions are administered in a staggered fashion. However, change in the second target while receiving intervention for the first target may be due to other factors, such as generalization (Ebbels, 2017). A multiple baseline design is considered to provide a moderate level of evidence.

Ziolkowski and Goldstein (2008) employed a multiple-baseline across-skills within-children design to determine whether embedding an explicit PA intervention within the context of SSR could improve rhyme and alliteration ability in 13 preschool-aged children with language delays from low-income households. Two intervention strategies, *Rhyme Time* and *Initial Sound Off*, were introduced in a counterbalanced fashion. *Rhyme Time* targeted ten rhyming pairs per session, while *Initial Sound Off* targeted five letter-sound pairs per session. The intervention program was completed in 13 weeks and included four baseline sessions. Rhyme and alliteration ability were assessed each week. Results revealed positive treatment effects for all measures with more robust effects for alliteration and rhyme identification than for initial sound knowledge and rhyme production. All skills were maintained above baseline and some of the children showed additional gains during the maintenance period.

Participant inclusion criteria were well specified and appropriate for the design. Criteria included: hearing, vision, and cognitive status, language performance, socioeconomic status, and preschool enrollment. The order of administration for the two strategies was randomly assigned across participants. Teachers, administrators, and parents remained blind to experimental conditions in order to avoid observer bias.

All procedures and testing measures were clearly and thoroughly described to allow for future replication. In order to ensure consistency across interventionists, training protocols were implemented prior to establishing baseline and starting intervention. Only three graduate students were employed as interventionists. While this improved the consistency of administration, the generalizability of the results is subsequently limited. Overall, the four measures employed to assess rhyme and alliteration ability were reasonable and valid; however, the test-retest

reliability of the Alliteration Individual Growth and Development Indicator was inadequate and the alternate form reliability of the Initial Sound Fluency subtest of the Dynamic Indicators of Basic Early Literacy Skills – Sixth Edition was based on the performance of kindergarten aged children; as such, this particular measure may not have been reliable for preschool-aged children.

Researchers suggested that the presence of a stable baseline for most of the children indicated that phonological awareness skills only improved when intervention was implemented. Analysis also included estimates of effect size, including percentage of all nonoverlapping data (PAND), Phi coefficient, and Cohen's *d*. This level of statistical evidence is acceptable for this type of study.

Despite the small sample size, reduced reliability of alliteration measures, and limited evidence regarding generalizability, Ziolkowski and Goldstein (2008) provided suggestive evidence for embedding an explicit PA intervention into SSR in a classroom setting for preschool children at high risk for later reading disabilities.

Discussion

Overall, these findings suggest that SSR is an effective approach for targeting PA skills in preschool-aged children between two and six years of age who are at risk for later reading disabilities due to language impairment or low-socioeconomic status. However, these findings were inconsistent across studies. Lonigan et al. (1999) noted improvement in alliteration but not rhyme, while Justice et al. (2005) noted improvement in rhyme but not alliteration. Lefebvre et al. (2011) noted improvement for all PA components. These variations may be related to the variability in SSR approaches. For example, Justice et al. (2005) included two PA tasks after each book reading session, while Lonigan et al. (1999) did not include PA tasks. Lefebvre et al. (2011) incorporated PA facilitation strategies into each book reading task. These inconsistent results may also be related to the variability in administrators. Justice et al. (2005) employed parents, Lonigan et al. (1999) appointed undergraduate students, and Lefebvre et al. (2011) used one SLP to administer the SSR intervention. Finally, these inconsistent results may have been related to the distinction between children from low-income households and children with language impairment. While Lonigan et al. (1999) and Lefebvre et al. (2011) studied the effects of SSR on children from low-income households, Justice et al. (2005) focused on children with SLI. This variability poses a

challenge when implementing SSR into clinical practice. Future research should aim to develop guidelines for clinical practice before clinicians use SSR as an approach for targeting PA skills in preschool-aged children.

Despite these inconsistencies, SSR was held in high regard by parents of preschool-aged children with SLI. Justice et al. (2005) noted a high degree of participant fidelity despite a demanding intervention schedule. Storybooks were read in their entirety 100 percent of the time, while both PA tasks were administered 91 percent of the time. Parents viewed storybook reading sessions as enjoyable and beneficial to their children's language development. Parent and child satisfaction is an important consideration when selecting alternative avenues for intervention. Clinicians must also consider parental literacy skills and training, especially when children come from low-income households. Lefebvre et al. (2011) reported that parent training is necessary for best outcomes; however, there is strong evidence that parents can be trained quickly and effectively. Clinicians may choose to consider using SSR as a parent-implemented supplement to PA intervention, as children are often already engaging in SSR during everyday routines at home (Lefebvre et al., 2011).

It is recommended that future research determine if generalization occurs, if there is maintenance of treatment gains, and if these gains impact later reading and writing ability. Researchers should also consider utilizing early-childhood educators to engage in SSR with 10 to 25 preschool-aged children as an approach to PA intervention in classroom settings. Lonigan et al. (1999) argued that typical shared reading has the potential to be a practical and effective intervention for large groups of children at risk for educational disabilities; however, the efficacy of SSR as a PA intervention approach has not been evaluated for large groups of preschool-aged children. Lonigan et al. (1999) also believed that classroom-based intervention approaches could provide additional opportunities for children without language delay to provide models for children with language delay. This may lead to more significant gains for preschool-aged children at risk for reading disabilities. Finally, future research should employ SLPs as primary interventionists to determine if SSR could be a successful approach within clinical settings. As previously discussed, only Lefebvre et al. (2011) used an SLP to administer the intervention and sessions were held in childcare centres. These findings are critical to determine if SSR can be used within a

highly contextualized environment to target PA skills in preschool-aged children at risk for later reading disabilities.

Clinical Implications

Based on the findings of this review, clinicians should use caution when applying SSR approaches within the context of PA intervention until additional research is completed; however, SSR may supplement current PA intervention approaches when administered by parents in the home. SSR provides opportunities for children at risk of developing reading disabilities to develop PA skills in enjoyable and naturalistic contexts. When using SSR as a model for homework tasks, clinicians must consider parental literacy skills and training in order to maximize success.

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