**Critical Review: Evidence supporting the use of print focus during storybook reading
at increasing pre-literacy skills in vulnerable preschoolers**

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This critical review examines the effect of using print focus techniques during storybook reading to increase the pre-literacy skills of vulnerable children. Research designs include randomized control trials and single-subject, multiple probe designs. Overall, the research suggests that using print focus techniques will increase emergent pre-literacy skills in vulnerable preschool children.

Introduction

The term emergent literacy is used to describe the pre-literacy skills that children learn prior to succeeding at conventional literacy (Justice, Ezell & Parsons, 2000). Important areas include knowledge of the alphabet, understanding print concepts and recognizing words in print (Justice & Ezell, 2000). It has been found that early literacy skills are strong predictors of a child's later reading ability (Justice & Ezell, 2005). If they are found to be struggling with these skills, then they are at risk for entering elementary school without a strong foundation for learning to read.

Vulnerable preschool children, which include those who have a language impairment and/or come from a low income family, have been found to be at an even greater risk for not attaining early literacy skills (Justice & Ezell, 2005). As attainment of emergent literacy skills is critical to a child's future success, it is important that techniques be developed that will help these children to overcome their reading difficulties.

Studies have shown that exposure to literacy in the home can have just as a profound impact on a child's literacy development as being exposed to literacy at school (Ezell & Justice, 2005). Previous research has shown that shared storybook reading has increased the pre-literacy skills in typically developing children (Justice & Ezell, 2000). According to Lovelace and Stewart (2007) a parent's reading method can have a tremendous effect on the child's language acquisition as well as their verbal contributions during the reading of the storybook. Explicit print focus techniques are an interactive way to encourage a child to be actively involved in shared storybook reading through comments, questions and requests about print (Justice, Kaderavek, Bowles, & Grimm, 2005). However, Ezell and Justice (2000) found that parents do not typically use these techniques without first receiving formal instruction.

Objectives

The primary objective of this paper is to critically evaluate the existing literature on the use of print focus techniques during storybook reading in order to increase pre-literacy skills, particularly in vulnerable preschoolers. The secondary objective of this paper is to provide recommendations as to what future research is required in the area of pre-literacy techniques during storybook reading.

Methods

Search Strategy
The computerized database, ProQuest Education, was searched using the following search criteria: ((Literacy) AND (Print Referencing) AND (Preschool)). PsychINFO, another computerized database, was searched using the following criteria: ((Preschool) AND (literacy*) AND (print focus) AND (storybook)). Research articles were also found using the reference portion of respectable resources.

Selection Criteria
The papers that were selected to be included in this critical review were required to use print focus techniques and be examining pre-literacy skills during shared storybook reading with preschoolers. For the purpose of this review, the term vulnerable preschooler is used to describe children who have a Specific Language Impairment (SLI) or come from a low income household. There was no discrimination in regards to the background of the adult who was participating in the shared reading. Speech-Language Pathologists, classroom teachers and parents were all included.

Results

The following studies are examined in chronological order as improvements were made across the studies over time. All studies had suggestive level 1 evidence. Study designs include randomized control trials and single-subject, multiple probe designs.

Study 1

Justice and Ezell (2000) examined the effectiveness of shared storybook reading within the home environment. The study focused on the parents' use of print-referencing for increasing their child's pre-literacy skills. Twenty-eight parents and their preschool child met all required criteria and participated in the study. The children were matched based on their receptive language ability and their parents' education level. Then one child was randomly assigned to either the experimental or control group. The authors completed a pretest-posttest design study which involved training the parents in the experimental group to use verbal and non-verbal print-referencing techniques. The parents in the control group had no training. Posttest analyses were conducted in order to determine what effect training parents to use print-referencing techniques had on the pre-literacy skills of their child.

The authors of this article completed a repeated measures Analysis of Variance (ANOVA) in order to examine the changes in rates at which both groups used the print-referencing techniques. A significant increase in all five of the print-referencing techniques (commenting, questions, requests, pointing, tracking) was found. This indicates that even when the techniques were not used, each child saw improvements in their pre-literacy skills. A significant difference between the groups at posttest was found in three out of the five subtests (Print Concepts, Words in Print and Word Segmentation). There was no significant difference found in the Alphabet Knowledge or Print Recognition subtests. These results indicate that by using print focus techniques the child will have a better understanding of print concepts, concepts involving words in print and how to segment strings of words. This study consisted of a between groups Randomized Clinical Trial (RCT) where the participants were tested at pre- and post-intervention. This type of experiment consists of level 1 evidence which is very strong and has low false positive and false negative results. The independent variable of this study was the effect of having print-referencing training or not having the training at all. The dependent variable was the children's scores on the pre-literacy subtests following intervention.

Although this study had a high level of evidence, there are a few notable limitations. The authors noted that a limitation could be a bias of the parents that were involved in the study, as they all volunteered to participate and may have already been aware of the benefits of storybook reading and therefore more interested in reading to their children. The authors also noted that all participating parents were reading storybooks to their children, to some extent, before this study began. Since not all families participate in the same

literacy activities in the home, it would be beneficial to conduct future research that includes parents who do not regularly engage in these activities, as there may be a different outcome. This article found that all children saw improvements in their pre-literacy skills, regardless if print focus techniques were used. These results indicate that using print focus techniques is only significant to certain pre-literacy areas (Print Concepts, Words in Print and Print Segmentation).

Study 2

Ezell, Justice and Parsons (2000) completed a study that examined the efficacy of a parent-child storybook reading program on improving the literacy skills of preschool children. Four families participated in the study, all of which had children who have a communication disorder. Before the study began, each parent filled out a questionnaire that assessed the frequency to which they currently participated in literacy activities within their home. All of the parents indicated that they participated in literacy activities at least four to five times a week with their child. Each child's emergent literacy skills were assessed at pre- and post-intervention using the Children's Concepts about Print and Book Reading (CPBR) and an Alphabet Knowledge Assessment. At pre-test the children's mean score was 2.5 out of a possible 15. Following the completion of the five week program which included group parent training sessions and individual guided reading sessions, the post-intervention results indicated a mean score of 6.25 on the CPBR. Because of the small sample size, the authors completed a directional, one-tailed Wilcoxen signed ranks test. The results indicated a significant difference from pre- to post-intervention on the CPBR. The results of the Alphabet Knowledge Assessment, however, indicated that there was no significant difference following the parent training program.

The dependent variable in this study was the use of the CPBR and the Alphabet Knowledge Assessment at post-intervention. The independent variable consisted of the techniques (print referencing, evocative and book management strategies) that the parents used during storybook reading. This study is a single-subject design which consists of high level 1 evidence. This type of design has strong confidence in regards to low false negative and false positive results and is suggestive in nature. Upon closer examination of the post-intervention results, the authors found that three of the four children made notable gains by acquiring five new print concepts. However, the youngest participant did not show any change. This result could be due to the fact that the participant was significantly younger than the other three and perhaps you need to be a certain age before you are able to acquire these skills.

The authors noted a limitation being the small sample size (n=4) which makes it difficult to generalize the results to other children with communication disorders. Another limitation involves the various communication disorders, as the results may be vary for a child with a phonological disorder versus a child with a severe expressive or receptive disorder. Future research that examines and compares children with similar difficulties would be beneficial for generalization purposes. It was interesting that the authors collected information regarding current literacy activities within the child's homes, as their prior exposure to literacy may have affected their results. The authors also noted another limitation being the measurement tool, as it was not standardized. More research is required in order to develop formal measures that assess emergent literacy skills in this population of children.

Study 3
Justice and Ezell (2002) conducted a study that examined the extent to which using print focus techniques during storybook reading would increase print awareness in preschool children from low-income households. Thirty children met the criteria for this study and were placed into age-matched pairs. Following the pre-test assessment, the children were randomly assigned to either the control or experimental group. This type of experiment is a RCT which consists of level 1 evidence. This level of evidence is very strong and typically yields low false positive and false negative results.

All 30 children completed the 8-week, small-group reading sessions. The experimental group featured a print focus (consisting of requests or questions about print, concepts of words and alphabet knowledge) whereas the control group sessions consisted of a picture focus (prompts regarding the character or the action). Each session was lead by a Speech-Language Pathologist (S-LP) who had experience working with preschool children. The dependent variable in this study was the use of the six informal measures of the children's early literacy skills, during post-intervention. The independent variables were the use of the print and picture focus techniques used during storybook reading.

The authors examined chronological age, receptive and expressive vocabulary and print awareness (PA) across both groups to determine if they were equivalent. The results of paired-sample *t* tests indicated that there was no significant difference between the groups in all of the categories except for expressive vocabulary. It was found that the experimental group outperformed their control group peers in this area (t (14) = 1.25, p < .05). Justice and Ezell (2002) further examined this discrepancy and found three of the children in the experimental group scored significantly higher on the Expressive One Word

Picture Vocabulary Test (EOWPVT-R), whereas no other children had scores within this range. Although the authors intended to use expressive vocabulary as a dependent variable in this study, they removed it because both groups were not equal.

A multivariate analysis of variance (MANOVA) was used at posttest to determine if there were any significant changes within and across groups. The results indicated significant posttest gains for four of the seven measures: Print Recognition, Words in Print, Alphabet Knowledge and PA Composite scores. No significant differences were found in the areas of Letter Orientation, Print Concepts and Literacy Terms. All three of these areas are important pre-literacy elements and there was no significant difference found when using print focus during storybook reading. When examining the question of whether print focus increases pre-literacy skills, these results would indicate that it does not in fact make a significant difference.

A limitation of this study is the small sample size considering the large number of dependent variables that the authors were examining (n=6). A notable limitation includes the fact that the experimental group outscored the control group on expressive vocabulary, which could be attributed to those children being exposed to more literacy-based activities in their home. Being exposed to literacy more often, could have in turn increased their vocabulary. Although the authors chose not use expressive vocabulary as a dependent variable, the results of this study remain questionable as this is an important area of development and the groups were not equal. The reliability of the six dependent variables could also be questioned as the authors analyzed them using their own method (PA Composite score) which is not standardized. Another limitation is that the authors allowed for make-up sessions for those children who were unable to attend the group sessions. This could alter how the child participated in a one-on-one session versus a group atmosphere and may have positively affected their post-intervention literacy scores. There was also no mention as to which group (experimental or control) the children belonged to, that were allowed the make-up sessions.

Although this study has strong level 1 evidence, as a clinician one would be cautious as to what I would extract from this study. It does provide evidence that print focus increases some pre-literacy skills but not other skills that are specific to print (i.e. print concepts and letter orientation). These results could be due to the fact that picture focus may also be beneficial at increasing pre-literacy skills and therefore there was no significant difference in these areas. As well, the authors allowed for make-up sessions which could have skewed the results to indicate there was no difference when there might have

been. Therefore the results could have been different if those children had no make-up sessions or had participated in all of the group sessions. Future research in this area could include a follow-up study which looks at how frequently the child was read to after the study was completed and also the long-term effects of print focus techniques on the child's academic abilities.

Study 4
Justice et al. (2005) completed a study that examined how effective parent-implemented Phonological Awareness (PA) intervention was for preschool children who have SLI. Twenty-two children were eligible to participate in the study and once they passed the screening they were randomly assigned to either an experimental or comparison group. The authors examined the two groups based on chronological age, oral language proficiency and non-verbal intelligence in order to determine if they were equivalent (Justice et al., 2005). A series of independent *t* tests indicated that the two groups did not significantly differ on any of the three variables. This type of study is a RCT which has a high level of evidence and has low false positive and false negative outcomes.

Each child was individually pre-tested to establish their baseline PA skills using informal criterion-referenced measures that were adapted from previous reputable research. The Rhyme and Alliteration Detection batteries were adapted from Chaney (1992) and the Rhyme and Alliteration Production batteries were from Maclean, Bryant and Bradley (1987) (Justice et al., 2005). The parents in both groups were provided with storybooks and a schedule as to when to read each book. Both sets of parents were then instructed to read the storybooks to their children in the way that they normally did as well as to audio-record each session. The parents in the experimental group were trained to engage their children in two PA tasks, rhyme awareness and alliteration, following each story. Each task asked the child to find a target word and then to search for another word in the book with specific phonological similarities. The parents in the control group were trained to complete vocabulary building tasks in the same "search and find" manner as the experimental group. The dependent variable used for this study was the informal, criterion-referenced PA measures that were created based on previous research. The independent variables were the two PA tasks, rhyme and alliteration, that the experimental group completed and vocabulary tasks that the comparison group completed.

A paired-samples *t* test was completed on the results of the intervention, which indicated a significant difference for rhyme but not for alliteration. These results indicate that PA techniques are helpful at increasing a child's knowledge of what a rhyming word is and how to detect

if two words rhyme, however, it does not increase a child's abilities to detect different sounds. Perhaps children need to be a certain age before they are able to detect sounds through PA techniques or perhaps they require a more direct method of teaching.

The authors noted a limitation being that there was no untreated control group. The comparison group had a vocabulary task to complete following their storybook, so it is unclear as to what influenced the effect on their PA skills. The authors noted that for future research it would be beneficial to add an untreated group in order to determine the influence of the PA tasks following the storybook. Justice et al. (2005) also noted another limitation being the parents reading style, as each parent was instructed to read the story as they normally would at home. This makes it unclear as to whether parents provided cues or praise for their child's attempts at the tasks and whether or not this affected their performance and overall gains. The small sample size (n=22) for this study as well as range in age and language among the children, were also noted by the authors. The small sample size may have affected the overall statistical power of the study and the wide range in age and language proficiency may make the study difficult to generalize to other children, as age and language are key areas of pre-literacy development.

As a clinician, this study provides another technique to consider for increasing pre-literacy skills in at-risk children. However, you may want further research that includes an untreated control group which will allow you to determine how the PA techniques influence both rhyme and alliteration. In the mean time, it would be beneficial to determine other methods of assisting the child at increasing their PA skills.

Study 5
Lovelace and Stewart (2007) completed a single-subject, multiple probe design study in order to determine the extent to which explicit print-referencing techniques facilitated print concept knowledge in children aged four to five years. They examined this effect in children with a language impairment during storybook reading. This type of study has level 1 evidence which creates greater confidence in the results because of low false positive and false negative results. School S-LPs identified five children who met the inclusion criteria for this study. All children were administered the Concepts of Print Assessment (CPA) which was prepared for this study. The dependent variable used in this study was the CPA whereas the independent variable was the focused stimulation of the print concepts prior to the storybook reading, using explicit print referencing techniques.

The study was conducted over thirteen weeks by a certified S-LP in the classrooms of each preschool child. Each child had to successfully complete the baseline and generalization probes before continuing on to the intervention sessions. During the intervention sessions, the S-LP used explicit techniques such as commenting, tracking and pointing, all of which did not require the child to respond. By not being forced to respond, this technique allows for the child to initiate or respond whenever they feel necessary. The goal of this technique is to have the child attend to the story and listen to the explicit comments, instead of being bombarded with questions. After each intervention probe was completed the child would move onto the next probe. However, by the end of the intervention sessions, not all children had completed all probes. A post-intervention assessment using the CPA indicated that all children showed a dramatic improvement of their knowledge on print concepts, even if all probes were not complete (Lovelace & Stewart, 2007). This result indicates that a child did not have to do all tasks, only a few involving print focus techniques, to see improvements.

There are several notable limitations to this study. The first limitation is that school SLPs hand selected the participants for this study, making it difficult to determine whether they randomly chose children or if they chose children based on severity or the likelihood that greater improvements would be made. The authors noted another limitation being the attendance of the participants, as three of the children missed at least one session, one child missed three sessions and another child missed eight sessions. There were no make-up sessions for these absences and the effects of these absences are unknown. Although these children missed several sessions, they still made notable gains by the end of the thirteen weeks, which indicates that having at least some exposure to print-referencing techniques is beneficial to a preschooler's pre-literacy development.

The authors noted another limitation being their method of measurement, the CPA, as it is not a standardized test and the test-retest reliability and validity has not yet been determined (Lovelace & Stewart, 2007). Another limitation that the authors noted was that they used the same books during the baseline and generalization probes as they did during the intervention process, so the child was exposed to the books prior to participating in the sessions. Prior exposure to the books could be why all the children experienced improvements. Therefore, the children's pre-literacy skills may not have improved; they may have just remembered what they discussed the last time they read the book. It would be beneficial to complete this study again using books that the children had not already been exposed to earlier in the study.

Although this study concluded that using print focus techniques increased pre-literacy skills in all children, as a clinician one would want to be cautious as to how to interpret their results. Since there are several notable limitations, further investigation is warranted. One could conclude from this study that at least some exposure to print focus is beneficial to all children.

Discussion

Based on the evidence provided, using a print focus during storybook reading can have a positive effect on increasing the pre-literacy skills of vulnerable preschoolers. It has been shown that it does not matter who the adult is that is reading the story, whether it be an SLP, day care teacher or parent, the positive outcomes are still the same. According to Justice and Ezell (2000), training parents on how to use print focus techniques with all children, not just vulnerable children, will help to decrease the amount of reading difficulties that children experience during school-age.

Although the evidence suggests that using a print focus will increase pre-literacy skills, it is inconclusive as to what areas are specifically affected. Justice and Ezell (2000) found that there were significant improvements in three of the five areas of pre-literacy skills (Print Concepts, Words in Print, Word Segmentation) but not in Alphabet Knowledge or Print Recognition. However, when they repeated their study in 2002 with at-risk children they found that alphabet knowledge did see a significant gain using print focus but Print Concepts, Letter Orientation and Literacy Terms did not. One reason for this discrepancy could be that typically developing children gain skills such as alphabet knowledge continuously over time, and that it is a skill that can not be rushed with the use of print focus techniques. However, the reason that at-risk children may have experienced a significant gain could be that they were already behind their same-aged peers when it comes to alphabet knowledge and therefore, print focus during storybook reading helped them to catch up with their peers. Overall, improvements were made in all of the pre-literacy areas, regardless of being exposed to print focus techniques. The use of this technique did have significant gains in certain areas but because of discrepancies further research is required in order to determine what these exact areas are.

A lack of standardized measures in assessing these literacy skills makes it difficult to generalize the conclusions to other children. It would be interesting to see whether a home-based program could be established to assist parents in the area of increasing emergent literacy skills. This way, S-LPs could provide the parents with a more structured outline as to what strategies work

the best for assisting their child at attaining these skills. It would be beneficial to examine this information from another researchers perspective, as the majority of the research to date has been completed by the same authors.

Recommendations

As a clinician it is important to consider the age of the child that you are working with as it is unclear as to whether these techniques will only be beneficial for children once they reach a specific age or developmental stage. Another consideration is whether or not children will develop certain skills only after they have been successful with others. If this is the case, then as an S-LP one will want to focus their goals on achieving the earlier skills before working on more difficult ones. Justice and Ezell (2000) noted that parents do not usually comment on print while reading a story, unless they have received formal instruction. So as a S-LP, it would be beneficial to provide parents with an information package and/or training sessions that provides them with different tips that they could use during story time. Simply strategies such as pointing to the words as you read them and commenting on concepts such as front, back, in and out, will be useful for the S-LP to use during therapy, as well as the parent to use while at home. Although it is inconclusive as to what areas are affected the most, research has shown that at least some exposure to print focus techniques will be beneficial. In this case, promoting them to parents is a good idea, as long as you explain to them that print focus will not benefit all areas of literacy development. As a clinician, one may chose to recommend to parents other techniques to compliment print focus, such as evocative and book management strategies. Future research could examine a combination of these techniques as they may be more useful when grouped together. This research also suggests print focus techniques may not be the best method to use when working on PA tasks. As a clinician, one would want to research other possible methods that would be more beneficial to this area of literacy development.

Future research that examines the effect of picture focus, perhaps on non-verbal children, would be beneficial in determining how effective it is when used alone. It would also be important to determine if there is a ceiling effect when it comes to pre-literacy skills, and whether there is an order that a child typically develops each skills and at what developmental stage and/or age. This would be helpful with at-risk children to determine what skill they should be working on next and it would allow one to understand why they have not gotten one of the skills when the do not have the few that go before it. It would catch up to their peers in terms of literacy development and what techniques, if any, were the most helpful.

also be beneficial to examine the long term effects of these techniques on a child's academic abilities. It would be helpful to see whether the at-risk children were able to

Conclusions

It has been found that a preschooler's ability to attain pre-literacy skills is essential to later achievement in reading (Justice & Ezell, 2005). It is crucial that parents, caregivers, daycare teachers as well as S-LPs are made aware of possible techniques that they can implement in order to help children attain these skills. Research has shown that print focus techniques, even when used explicitly, are useful at helping children increase pre-literacy skills. Specifically, this technique assists them to gain knowledge of print recognition, words in print and word segmentation, all of which help contribute to their later literacy skills.

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