Critical Review:

Does interactive book reading improve the language and literacy skills of young children with an intellectual disability?

Alexis Kozak
M.Cl.Sc. (SLP) Candidate
University of Western Ontario: School of Communication Sciences and Disorders

This critical review examines the evidence regarding the effectiveness of interactive book reading on the language and literacy skills of young children with an intellectual disability. A search of the literature yielded five papers with study designs that included single group design, between groups design, crossover design, and single subject design. Some studies contained evidence for intervention programs that included interactive book reading while others contained evidence exclusively for interactive book reading. Overall, the literature reviewed provides highly suggestive evidence that interactive book reading improves the language and literacy skills of young children with an intellectual disability. Clinical implications and recommendations for further research are provided.

Introduction

Book reading that is interactive or shared has been shown to promote the language development of preschool children. Book reading provides a natural opportunity for parents to facilitate their young child's language and it also provides an optimal environment for a child to learn language (Van-Kleeck, Gillam, Hamilton & McGarth, 1997). Book reading can also be thought of as a routine since children's books often contain repetitions of vocabulary items and phrases. The use of routines is another way to enhance language development (Ratner, Parker, & Gardner, 1993). Children can grow to enjoy particular books and may develop a favourite book because they enjoy the routine that it contains. As well, joint attention is required to share a book with another person. Joint attention is a precursor to language and so by implementing shared book reading, parents can begin to foster emergent language and literacy skills (Tomasello & Todd, 1983).

Interactive book reading has been shown to promote the development of language and literacy skills in at-risk children (Wasik & Bond, 2001). Children with intellectual disabilities are likely to experience language and literacy impairments. As well, these children's home environments are different from typically developing children in terms of their opportunities for literacy development (Van Der Schuit, Peeters, Segers, Van Balkom, & Verhoeven, 2009). It is reasonable to think that interactive book reading could provide a supportive context for learning for children with intellectual disabilities.

Many studies in the literature focus on interactive book reading as tool to promote language and literacy in typically developing children and children who are at risk for speech and language problems. Few studies consider the specific population of children with intellectual disabilities and how interactive book reading intervention influences their language and literacy development. This review will critically examine the evidence pertaining to improvements in language and literacy skills related to interactive book reading in young children with intellectual disabilities.

Objectives

The primary objective of this paper is to provide a critical review of the existing literature on the effectiveness of interactive book reading on the language and literacy skills of young children with an intellectual disability. The secondary objective is to propose evidence-based clinical implications for this type of intervention.

Methods

Search Strategy

Computerized databases, including PsycINFO, PubMed, and SCOPUS, were searched using the following key terms: ((preschoolers) OR (young children)) AND (intellectual disability) AND ((storybook reading intervention) OR (interactive book reading) OR (shared book reading)). The search was limited to articles written in English.

Selection Criteria

The studies selected for inclusion in this critical review were required to involve preschool children who received intervention that contained interactive book reading. Many studies found included a variety of

intervention programs that promoted language and literacy, however, these programs needed to contain interactive book reading in order to be included in this critical review paper.

Data Collection

Results of the literature search yielded five articles congruent with the aforementioned selection criteria with the following research designs: single group design (1), between groups design (1), crossover design (1), and single subject design (2).

Results

Using a single group design, Katims (1994) looked at the use of classroom procedures over one school year to advance the initial literacy of 14 children (4-6 yrs; nine boys) with mild to moderate intellectual and behavioural disabilities. Intervention included the creation of an inviting classroom library center, daily group storybook readings, and assisted group readings during which children were asked to repeat words, phrases, or sentences as well as supply missing parts of the story. An appropriate standardized test was administered at pre- and posttest to measure concept and print knowledge. An appropriate ANOVA revealed significant increases in knowledge of print and books at posttest. As well, the children's behaviour towards books in the library center was monitored. An appropriate chi-square test revealed a statistically significant increase in re-enactments of favourite books in the library center at posttest.

Diagnostic information about the participants was not reposted in this study. It was stated that children with mild to moderate intellectual disability comprised approximately one-third of the group. The other two-thirds were comprised of children with learning, behavioural, and physical disorders as well as general developmental and speech and language disorders. The procedures were described in fair detail including the characteristics of the books in the library center, the classroom teacher's level of education and experience, the researchers' qualifications, and the setup of the group book readings and assisted readings. Although improvements were made, it is uncertain if these children would have improved from simply being in school that year. Since this was a single group design, this uncertainty remains. Overall, the results of this study provided somewhat suggestive evidence.

Using a between groups design, Saint-Lauren, Giasson, and Cout (1998) evaluated the impact of a home-based emergent literacy program on 20 French-speaking children (4-6 yrs; 11 boys) with an intellectual disability. This 8-month program comprised of three major components: modeling the numerous uses of reading and written language, exploration of writing materials and books, and 10 to 15 minutes of daily interactive book reading. The participants were equally distributed between an experimental and comparison group. All parents received training in using interactive reading strategies. Parents of children in the experimental group received visits from a case manager weekly who provided support and supervision of the program. For the purpose of this study, an altered version of the Emergent Literacy Scale was used at pretest and posttest to measure progress in emergent literacy skills. Although the statistical analysis of the pre-post data was not clearly presented, evidence that both groups improved was provided by an ANCOVA with pretest scores entered as covariants. Groups did not differ on 11/12 emergent literacy skills, with the experimental group having scores higher on pretend reading.

The participants of this study were not described in detail in that the severity of the participants' intellectual disabilities was not given. The authors stated that the children were required to have a single diagnosis of intellectual disability and that children diagnosed with profound intellectual disability were excluded. It is unclear if the children had mild, moderate or severe intellectual disabilities. The procedures of this study were also not clearly described. In particular, the difference between the experimental and comparison groups was not noticeably defined. Both groups implemented the home program and the experimental group received additional support regarding how to implement it. The stated purpose of the study was to evaluate the efficiency of the home program when in actuality, the amount of support given to parents was manipulated. The measures used in this study were administered without blinding. That is, while viewing the videotapes, the raters knew if they were viewing a pretest or posttest tape, introducing potential for bias. Overall, the results of this study provided somewhat suggestive evidence.

Using a crossover design, Davie and Kemp (2002) examined whether interactive book reading could elicit more language than facilitated play in 22 children (4-6 yrs; 16 boys) with mild to moderate intellectual disabilities and delayed language. Each child participated in two sessions- interactive book reading and facilitated play. Each intervention session was 20 minutes long. For 15 of the children, the play session occurred first. The sessions were videotaped and language output measures were counted. Appropriate paired t-tests revealed significantly more utterances, more intelligible utterances, more complex utterances, and more conversational interaction in the interactive

book reading condition compared to the facilitated play condition.
The participants were specified and described in detail. Each subject's diagnosed disability and level of disability was clearly noted. The variability in the severity of participants' disabilities was considered strength in that the findings might apply across the range of severity. The facilitated play condition was described in much more detail than the interactive book reading condition, which makes replication challenging. This study evaluated two types of language intervention for children with intellectual disabilities and no control group was used. Although the purpose of the study was to determine which intervention strategy elicited more language output, a comparison to a control group that received no intervention or to typically developing children would have further supported their findings. One strength of the crossover design is that it controls for confounding factors such as order effects. Overall, the results of this study provided highly suggestive evidence.

Using a single subject design, Mims, Browder, Baker, Lee, and Spooner (2009) evaluated the effect of interactive stories on listening comprehension on two children (6-year-old boy and 9-year-old girl) with severe and profound intellectual disabilities who were also visually impaired. Three popular elementary books were adapted to include five concrete objects that were mentioned in the books. The children were asked comprehension questions throughout the reading and were given the object and a distractor to respond. They were given verbal prompts, models, or physical prompts if necessary but only responses that were unprompted were scored as correct. Appropriate ABA analysis revealed that the number of correct responses to comprehension questions increased after intervention was implemented for all three books.

The authors of this study described an important clinical problem that was addressed by a clearly formulated question investigated using well-described procedures. For example, least-to-most hierarchy employed when prompting for the purposes of instruction was described in a sufficient amount of detail. The one-to-one format might be considered a strength of this study given that children with intellectual disabilities may require individual goals and procedures. For this reason, the findings of this study can be transferable to other clinical settings. Overall, the results of this study provided highly suggestive evidence.

Using a single subject design, Stephenson (2009) examined if interactive picture book reading would be appropriate for improving the language use of four children (7-8 yrs; two boys) with severe intellectual disabilities using augmentative and alternative communication. The classroom teacher read a semiscripted book three times per week for approximately ten weeks. The children were taught to answer questions during the book reading by touching coloured line drawings displayed on their communication boards or by touching book illustrations. Appropriate ABA analysis revealed that two of the four children showed improved performance after intervention was implemented.

The findings of this study are clinically useful and can be transferable to other clinical settings. The authors went beyond most research in the field and considered the language use of children using augmentative and alternative communication. This is considered to be a strength of the research. As well, this study supports the use of group-based therapy. Given the group context of this intervention, the children were able to observe picture use by their peers, peers' responses, and teacher's feedback. This support for group-based therapy can be extended to other types of language intervention. Overall, the results of this study provided highly suggestive evidence.

Discussion

The critical appraisal of the evidence included in this review suggests that interactive book reading improves the language and literacy skills of young children with an intellectual disability. All studies included book reading that was interactive in that children were involved in the readings. However, some studies contained evidence for intervention programs that included interactive book reading while others contained evidence exclusively for interactive book reading.

Katims (1994) and Saint-Lauren et al. (1998) examined a variety of components that promoted language and literacy. Interactive book reading was one component of the larger intervention programs. Katims (1994) evaluated a classroom literacy program and presented somewhat suggestive evidence that when children are given structured opportunities to interact with meaningful, literature-rich environments, their level of sophistication in their interactions with storybooks increases. Saint-Lauren et al. (1998) presented somewhat suggestive evidence that a stimulation program in the home environment has a modest but promising effect on emergent literacy skills. Since interactive book reading was merely a component of a larger intervention program, it is hard to draw strong conclusions about interactive book reading specifically

and it also makes it difficult to compare these studies to the others included in this review.

The remainder of the studies contained evidence exclusively for interactive book reading. Davie and Kemp (2002) presented highly suggestive evidence that interactive book reading elicits more intelligible, complex, and interactive language when compared to facilitated play. Mims et al. (2009) presented highly suggestive evidence that interactive book reading improves listening comprehension. Stephenson (2009) presents highly suggestive evidence that it is practical to use interactive book reading to improve the language use of children using augmentative and alternative communication. As these studies exclusively looked at the effects of interactive book reading, other confounding, treatment-related variables did not affect their outcome measures.

The studies included in this critical review used different outcome measures including expressive language, receptive language, literacy skills, and measures created by researchers. Katims (1994) is the only author that used a standardized test to measure treatment outcomes. However, the use of standardized measures does need to be considered with caution, as children with intellectual disabilities likely cannot be compared to the normative data of these tests. As well, informal testing extensions that stray from formal assessment standards may need to be implemented.

Several issues regarding the population of this critical review make it difficult to draw strong conclusions and compare studies. Firstly, the range in severity of intellectual disability of the children included in these studies varied. Children's intellectual disabilities were reported to be mild, moderate, severe, and profound. This makes it difficult to draw conclusions, as children at different functioning levels will perform differently on language and literacy tasks. Secondly, comorbid deficits such as behaviour disorders, visual impairments, learning disabilities, physical disorders, general developmental disorders, and speech and language disorders were present in children included in all of the studies. These comorbidities may have introduced confounding variables. Lastly, the sample sizes used in these studies were small. Mims et al. (2009) and Stephenson (2009) examined two to four children while Katims (1994), Saint-Lauren et al. (1998), and Davie and Kemp (2002) examined 14 to 22 children in their analyses. These small sample sizes may have decreased the effect sizes of the studies. The clinical issues presented above are to be expected given this population. It is difficult to conduct research with children with intellectual disabilities, as this population is quite specific and may be difficult to recruit for research purposes.

Recommendations

It is recommended that further research be conducted on the effects of interactive book reading on the language and literacy skills of young children with an intellectual disability containing the following:

- Outcome measures that contain some degree of standardization.
- Greater sample sizes to improve the ability to generalize findings.
- The long-term effects that interactive book reading has on the language and literacy skills of young children with intellectual disabilities.

Clinical Implications

Although limitations pose a challenge for comparison between studies, and regardless of common difficulties in this field of research, the critically reviewed studies depict similar outcomes. The studies reviewed collectively offer a suggestive level of evidence supporting the use of interactive book reading to improve the language and literacy skills of young children with an intellectual disability. Speech language pathologists can recommend that parents and children with intellectual disabilities read books together as a way to facilitating language and literacy development. Parents can also work on communication goals while reading with their child. As well, interactive book reading can be used by speech language pathologists as an assessment tool as it can elicit intelligible, complex, and interactive language.

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