Critical Review:
Is video-based training effective for caregivers to implement Dialogic Reading strategies with preschoolers?

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This critical review examines the efficacy of a video-based training program for caregivers and the implementation of Dialogic Reading strategies with preschoolers. Studies appraised in this review include randomized clinical trials and single-subject, multiple baseline design. Overall, the research suggests that a video-based training program is an effective method for teaching caregivers Dialogic Reading strategies. Recommendations and clinical implications are also discussed.

Introduction

Dialogic Reading (DR), designed by Whitehurst et al. (1988), is a specific style of shared storybook reading. It encourages caregivers to develop a more interactive experience with preschool children by facilitating, expanding and responding to the child's communicative attempts and utterances. As cited by Zevenbergen & Whitehurst (2003), DR has been demonstrated to foster preschoolers' language development in areas of vocabulary, oral language complexity and narrative skill gains, as well as later language and literacy skills.

DR strategies for 2 and 3 year-olds include asking "what" questions, repeating what the child says, helping the child, praising and encouraging and following the child's interests. More importantly, caregivers are recommended to ask open-ended questions and expand what the child says. Reading strategies with 4 and 5 year-olds include the CROWD and PEER techniques: completion, recall, open-ended, Wh- and distancing prompts. PEER encourages prompting, evaluating, expanding and repeating (Zevenbergen & Whitehurst, 2003). The goal of DR is for the caregiver to be an active listener and the child to be an active participant in a motivating reading experience.

In recognition of the compelling efficacy of the DR intervention approach, Whitehurst et al. (1994) sought to create a standardized, cost-effective training method that would achieve large-scale dissemination. Previous research by Webster-Stratton (1981), in which caregivers were presented with video-based training to teach and use skills in a home-based intervention, supported this method as an effective teaching tool.

Whitehurst et al. (1994) then developed a videotape training format now commercially available, *Read Together, Talk Together (RTTT)* (Pearson, 2002). The video presents two 20-minute training sessions, which include explanations of DR, descriptions of techniques, modeled demonstrations and 'quizzes' (Zevenbergen & Whitehurst, 2003).

Huebner & Meltzoff (2005) noted that National surveys indicate that parents are responding to recommendations to increase literacy-based activities. However, parents may not be changing the quality of reading most beneficially known for fostering children's oral language development. Additional support is needed to maximize their reading experience from a 'straight-reading' to a more interactional, dialogic reading style. The commercially available resource may have a great impact on caregivers and preschoolers universally. The existing literature should be examined to determine whether a video-based training program is an effective method for caregivers to learn and carry out Dialogic Reading strategies.

Objectives

The primary objective of this paper is to critically evaluate the existing literature regarding the efficacy of a video-based caregiver training program, its impact on children's language skills as well as caregiver treatment integrity. The secondary objective is to discuss recommendations for clinical practice and suggestions for future research.

Methods

Search Strategy

Computerized databases, including Scopus, CINAHL, PubMed, ProQuest, and PsychInfo, were searched using the following search strategy: (Dialogic Reading) OR (shared storybook reading) AND (parent) OR (videotape) OR (training). Articles were also found by searching cited references. The search was limited to articles written in English between 1988 and 2009.

Selection Criteria

The articles selected for the critical review paper investigated the effectiveness of a video-training program for parents and their use of dialogic reading strategies with their preschooler. No limits were set on the demographics of research participants or outcome measures.

Data Collection

Results of the literature search yielded the following types of articles congruent with the aforementioned selection criteria: randomized clinical trial (RCT) (4) and single-subject, multiple baseline design (1).

Results

Arnold et al. (1994) studied the effectiveness of teaching parents dialogic reading strategies via a videotape training package. The educational video replicated the intervention program designed by Whitehurst et al. (1988). Based on the results of this previous study, they hypothesized that their findings would be similar by demonstrating a gain in children's language skills.

Sixty-four parent-child pairs participated in the study. Children ranged from 24 to 36 months of age. Families were of middle to upper socioeconomic status (SES). Prior to the parent-training session, preschoolers' expressive and receptive language skills were assessed using standardized measures, revealing average to above-average levels.

The study design was a between groups, randomized clinical trial (RCT), which compared a video-training group to a control group and a direct-training group. Following five weeks of parent-child reading sessions, language skills were reassessed. Results revealed the video-training group's language scores were significantly higher than both the control and the traditional direct-training groups.

The study provided level 1b experimental evidence, the 'gold-standard' design for research. An analysis of covariance (ANCOVA) was conducted to compare the three groups' language skills. Initial language scores were controlled for. This was a merit of the study, given that outcome was measured by language skill gains. Arnold et al.(1994) reported that language skill gains were found regardless of initial language skill level.

Due to the limited demographic status of the sample, the findings cannot be generalized to lower socioeconomically advantaged families, nor to children with lower language skills. Also, participants in the study reported strong frequency of shared reading practices prior to the study, which indicated common interest in literacy-based activities. Despite the sample's limitation, this study's findings are highly suggestive. They provide high-level evidence and clinical relevance that video training served as an effective tool to teach parents to use dialogic reading strategies. Significant effect was also found by the gain in preschoolers' language skills.

Whitehurst et al. (1994) conducted a follow-up of the Arnold et al. (1994) study, to investigate the effect of the videotape teaching with families of lower-income status. Seventy-three families of diverse ethnic backgrounds from the New York area were recruited. Reportedly, these families experienced less than half the amount of literacy-based activities in the home compared to Whitehurst et al.'s original research (1988). The children's language skills were also significantly below average prior to enrolment.

Participants were randomly assigned to one of three experimental groups: 'school' reading, 'school plus home' reading and a control group. Following six weeks of intervention and at 6-month follow-up, children's language skills were reassessed. In this study, teachers and caregivers were trained via videotape with additional role-play and feedback activities.

Results were based on language gains from several standardized expressive language assessments. An ANCOVA, 5 (day-care centres) x 3 (treatment conditions) was administered. Similar to Arnold et al. (1994), language scores of children's pre-test served as the covariate to control for initial language ability. Results revealed that the 'school plus home' condition was significantly higher than 'school' condition at 6-weeks. Based on analysis of treatment fidelity, two of the five day-care centres were non-compliant in regard to reading frequency; 2-3 sessions per week versus the recommended daily reading session. Overall, in the compliant centres, significant gains in language scores were obtained from combined 'school plus home' and 'school' conditions and no significant differences were found between them. Due to infrequent reading sessions in the non-compliant centres, no significant gains were found in either treatment condition. Therefore, when reading sessions are more frequent and consistent, day-care teachers and caregivers of low-income can serve as effective partners of DR following videotape training.

A contribution of this research was that preschoolers in the day-care setting were involved in small groups, indicating that such an intervention setting can also support DR. One limitation of the study is that there was no treatment group without the 'school' reading influence. Therefore, a comparison group of 'caregiver' treatment condition would have benefited the study, to allow for evaluation of home-reading, independent of other influences. Level 1b experimental evidence was obtained, providing suggestive support of the researcher's hypothesis.

Huebner et al. (2005) evaluated the effect of three parent-training methods on parent reading behaviours

and child verbalizations. One-hundred and nine parent-child pairs were recruited for this study, with children ranging from 23 to 33 months of age. Participants varied in education and socioeconomic status, as well as language skills.

In a randomized clinical trial, participants were randomly assigned to one of four groups: baseline, 'in-person instruction', 'self-instruction with follow-up' and 'self-instruction without follow-up'. All groups viewed the videotape, and the 'in-person' group received additional role-play practice and feedback. The main method of analysis was a paired t-test to assess the DR ratio: ratio of behaviours to increase divided by behaviours to decrease, child verbosity and mean length of utterance (MLU). An ANCOVA was performed to evaluate differences in mean group scores between the instructional and baseline groups. Results revealed that all three methods were effective in improving DR use and child verbosity, however, 'in-person' training proved to be most advantageous for parents with high school education only. Therefore, level of education may have influenced parents' use of behaviours.

A strongpoint of this study is that inter-rater agreement averaged 0.90 to 1.0, which demonstrated high internal reliability when coding DR strategies. An additional benefit of this study is its examination of a lower SES and education level. This study obtained level 1b evidence, providing compelling support for 'universal implementation of instruction'. Huebner & Meltzoff (2005) suggested that families of lower SES may further benefit from role-play and feedback activities to maximize caregiver integrity.

Blom-Hoffman et al. (2006) studied parents' facilitative DR behaviours and children's reading-related utterances during shared book reading. The authors hypothesize that caregivers who viewed the video would increase their use of DR strategies compared with pre-training and the control group. Similarly, they hypothesized that preschoolers' amount of verbalizations would increase post-treatment and compared to control group. These two outcome measures were theorized to be maintained at 12-weeks follow-up.

Eighteen caregiver-child dyads participated in this study. Preschoolers were slightly older than in previous studies, ranging from 30 to 55 months of age. Participants were of various ethnicities and educational backgrounds. A randomized clinical trial design was used to compare the experimental group, who viewed *RTTT*, to the control group at 6 and 12 weeks post-training.

Outcome measures were analyzed by type and frequency of DR strategy used by caregivers and percentage of child on-task verbalizations. Between group differences were analyzed by *Cohen's d* effect size (ES), which quantifies the strength of a relationship between variables and provides a very useful comparison measure. At 6-weeks post-treatment, caregivers exhibited a very large effect size for DR use (ES= 2.26), and a large effect size (ES=0.78) was found for children. At 12-weeks follow-up, although decreased, caregivers maintained this large effect size (ES= 1.36). Child's verbalizations increased and resulted in a very large effect size (ES= 1.26). These results demonstrated nearly a two-fold increase for the experimental group. Therefore, this supports the efficacy of video training, in that parents and children increased and maintained desired behaviours after 12 weeks. This study yielded well-designed level 1b evidence, with compelling clinical validity and importance.

A strength of this study was evidenced in the high inter-rater agreement of utterance coding, ranging from 87-100%. One limitation of this study was the small sample size, which the authors recognized. However, results were comparable to those of other studies mentioned. Another aspect of the study which looked at type of DR strategy used revealed higher frequency use of certain prompts: Wh-questions, open-ended questions and evaluation, whereas others, such as expansion, repetition, recall and distancing, were used infrequently. Therefore, variability in type of DR strategy used was evident; however, effects of the individual strategies on children's language skills remain unknown.

A unique contribution of this study was the evaluation of a new training setting: waiting rooms of community health centres (CHC). Authors also conducted an acceptability rating pre- and post-treatment using the Intervention Rating Profile (IRP). Overall, 88-93% of participants as well as CHC staff rated the video training as having clearly positive views of the program, which may have played a role on their commitment of the program during intervention.

Briesch et al. (2008) evaluated caregivers' role in implementing DR strategies following videotape training. Researchers were interested in the integrity in which caregivers carried out the intervention, relative to type and frequency of strategy used over a 6-month period.

Six caregiver-child dyads participated in a single-subject, multiple baseline design. Participants were all Caucasian families from Northeast, USA, with varied educational backgrounds. Preschoolers ranged from 37

to 50 months of age. Reading frequency at pre-training was reported to be at least once every other day for the families. Following initial videotape viewing, caregivers completed a Usage Rating Profile for Interventions (URP-I). This self-report served as a rating scale to assess acceptability, understanding, feasibility and integrity aspects of the program. At 6-month follow-up, re-evaluation of the URP-I indicated overall maintenance of acceptability and feasibility.

Researchers assessed caregivers' use of DR strategies at baseline, intervention, and at 6-month follow-up. Analysis of data was calculated by standardized differences between means, which yielded a very large effect size (ES) of 3.94 across dyads; a twofold increase. However, investigation into the ES of each of the strategies used demonstrated great variability, between .56-5.54. Certain strategies, such as Wh-questions, evaluation and distancing were used very frequently, compared to others that showed relatively no increase in use, such as recall, repeat and expansion prompts. This finding was similar to Blom-Hoffman et al.'s (2006) study.

Due to the narrow demographics of the sample, careful interpretation and generalization of findings should be taken. Although the sample is quite small, researchers were able to investigate each dyad more extensively. Also, inter-rater reliability for coding behaviours was 77.4%, falling a little short of the recommended standard level of 80%. Despite these limitations, results supported overall effective training and use of most DR strategies following videotape training. Level 1b experimental evidence was obtained in this study, supporting highly suggestive clinical importance of the DR video training program.

Discussion

A review of the available evidence regarding video-based training revealed an overall increase of caregivers' use of Dialogic Reading strategies and of children's language skills. Several key findings emerged from the literature that demonstrated positive effect of the training program for both the preschoolers and caregivers.

Several of the studies evaluated the effect of caregivers' Dialogic Reading style on their preschool children. Two of the studies looked specifically at language skill and showed gains in the preschoolers' language development from pre- to post-intervention (Arnold et al., 1994; Whitehurst et al., 1994). Both studies found significant increases of children's language skills compared to the control group, in which caregivers did not view the videotape. Initially, the children in these samples ranged from below-average to

normal language skills. The studies demonstrated improvements in both children with delayed and within normal limit language skills. Blom-Hoffman et al. (2006) focused on children's percentage of on-task verbalizations, which demonstrated nearly a two-fold increase and very large effect size at 12-weeks follow up. Similarly, Huebner & Meltzoff (2005) also found increase in child verbalizations as a result of caregiver viewing DR video training and implementing the strategies. Greater amount of child verbalizations indicates a more active child-role during shared storybook reading; the main goal of Dialogic Reading.

On behalf of the caregivers, the studies evaluated different aspects of the effects that video-based training had on implementation of the DR program. Huebner et al. (2005) found that viewing the video training was effective for parents to greatly increase the prescribed reading strategies and also decrease the undesirable reading behaviours. Blom-Hoffman et al. (2006) came to similar findings, in which caregivers significantly increased use of DR strategies following training, and in fact maintained the new reading style after 12 weeks. The considerable increase and maintenance of DR use exemplified that treatment integrity was upheld. The success of intervention was reflected in caregivers' high acceptability ratings of the program, even in community health care centers (Blom-Hoffman et al.,2006; Briesch et al., 2008). Although use of strategies increased significantly, inconsistencies of type and frequency of each strategy used were found among a few of the studies. Both Blom-Hoffman et al. (2006) and Briesch et al. (2008) discussed great variability in this area; high increase of certain DR strategies, such as Wh-questions, open-ended questions, evaluating and distancing. Relatively little use of other strategies was found, such as recall, repetition and expansion. Still remaining unknown is the effect of the individual strategies on children's oral language development.

Inter-rater agreement was evaluated from independent coding of caregiver and child utterances by two trained research assistants. Several studies reported levels that ranged from 88 to 100% (Blom-Hoffman et al., 2006; Briesch et al., 2008), with one measure of 77.4% that fell slightly below the gold-standard, 80% level. These studies demonstrated strong inter-rater reliability, a factor that is very important for the study's methodology.

Some limitations were found among the research papers reviewed. A few studies demonstrated limited demographics or sample sizes (Blom-Hoffman et al.,2006; Briesch et al., 2008;Whitehurst et al., 1994). Consequently, the results could not be generalized to the overall population. The results would have had stronger generalization if the researchers would have

gathered larger and more demographically diverse sample populations. Despite these limitations, all studies reviewed obtained high-level 1b experimental evidence, the gold-standard of research design, which demonstrated high reliability of findings. They also all resulted in evidence supporting their hypotheses, which provides compelling validity and importance evidence that caregiver implementation of dialogic reading is effective via video-based training.

Overall, the results of these studies strongly support the use of video-based training programs for parents to learn and maintain use of Dialogic Reading strategies. As many of the researchers stated, the video training program offers a standardized and consistent informational model, with real-life demonstrations (Whitehurst et al., 1994; Blom-Hoffman et al., 2006). A 20-minute time commitment produced a large positive influence on shaping caregivers' reading style, as well as facilitating the child's language skills and verbalizations. Research also demonstrated strong maintenance of skills over time, from 12 weeks up to 6-months follow-up. (Briesch et al., 2008; Whitehurst et al., 1994).

Recommendations

Future research in this area should be conducted to further explore factors that may influence the integrity in which caregivers use DR strategies. Research should include the following suggestions:

1) Further studies examining the effect of the individual Dialogic Reading strategies on child's oral language development, in order to determine their clinical importance. Prioritizing and emphasizing the various strategies could help modify and improve training to educate caregivers on which strategies are most beneficial.

2) Research samples should include families with little to none reading experiences or motivation, to evaluate the impact of the training program in this population. Results could also be compared to previous studies and populations with more frequent reading activities.

3) Demographic characteristics for future studies should continue to most accurately represent the general population with larger sample sizes and more varied in terms of ethnicity, educational level, socioeconomic status, and gender of caregivers and families.

4) Evaluation of various settings for viewing video-tape training sessions such as at home, public libraries, and other locations where caregivers spend time.

Clinical Implications

Research evidence supports that offering a video-based training program to caregivers can significantly improve reading style during shared storybook reading. In turn, the interactive reading experience can facilitate and enhance the preschoolers' oral language skills.

Each study contributed to the literature in various ways. Compelling implications were found for clinical practice that Speech-Language Pathologists should adopt into their practice. They should advocate within their community the following benefits: implementing video training in community health care settings, with low SES families of varied ethnicity and educational backgrounds, for caregivers and/or educational members and one-on-one or in small-groups. Huebner et al. (2005) described a 'universal preventive intervention'; Briesch et al. (2008) expressed a 'powerful tool for early intervention'. It is a practical, cost-effective way of achieving large dissemination, and positively shaping caregivers' reading style into one that fosters children's oral language, literacy development, and boosts school-readiness.

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