Preparing Teachers to Train Parents in the Use of Evidence-based Tutoring Strategies for Reading Fluency

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Abstract

At the national level, many students do not perform at a proficient level in reading. Unfortunately, teachers often have difficulty finding time to provide supplemental reading fluency instruction. Although there is promising evidence for parent tutoring strategies for improving reading fluency, tutoring programs are not widely used in schools. This study examined the effectiveness of providing parent training in school settings using teachers as trainers. An evidence-based reading package including listening passage preview, repeated reading, error correction, and performance feedback was developed. Three first grade teachers were trained using video-training, written instructions, and practice with peers. Eight parents received a similar manual and video and then met with teachers to practice the strategies and develop a tutoring plan. Parents then implemented the reading fluency tutoring package for eight weeks. Student progress was monitored weekly using a curriculum-based measure of oral reading fluency. A multiple-baseline across participants design was employed to evaluate the effects of the tutoring on student reading performance. Results show varying levels of treatment fidelity by teachers and parents that corresponded with improvements in student oral reading fluency. Teachers, parents, and students rated the training and tutoring procedures as acceptable. Future applications of evidence-based tutoring practices and considerations for implementation and sustainability in real world settings are discussed.

Preparing Teachers to Train Parents in the Use of Evidence-based Tutoring Strategies for Reading Fluency

The ability to read is fundamental to children's success in school and future occupations (National Center for Learning Disabilities, 1999). Unfortunately, at the national level, the majority of fourth grade students score below the proficient reading level (Lee, Grigg, & Donahue, 2007). Reading fluency is an integral element of reading development and is defined as the ability to read connected text accurately, quickly, and with proper expression (National Institute of Child Health and Human Development [NICHD], 2000; Torgesen & Hudson, 2006). One way to increase levels of reading proficiency for all students is to increase academic learning time, but educators have difficulty finding time and resources to supplement fluency instruction for struggling readers in the classroom (Chard, Vaughn, Tyler, 2002; Kameénui & Simmons, 2001). Therefore, it is important to examine alternatives such as parental involvement and support of reading in the home.

Parents can provide additional opportunities for students to practice skills outside of the school setting, thereby improving academic achievement (August & Shanahan, 2006). Current legislation and school initiatives, such as No Child Left Behind (NCLB), Title I, and Response-to-Intervention (RtI), encourage and require educators to communicate with and involve families in the education of students (Epstein & Hollifield, 1996). Parent tutoring in reading has been identified as a promising intervention for improving academic performance based on the criteria developed by the Task Force on Evidence-Based Interventions in School Psychology (Fishel & Ramirez, 2005). Additionally, evidence-based strategies that are easy to implement, such as the method of repeated readings, have been identified and recommended for improving reading fluency (NICHD, 2000). Yet, parental reports indicate lack of information from teachers about

how to help at home (Epstein & Hollfield, 1996). This demonstrates a gap between research and practice that places teachers, parents, and students at a disadvantage in that effective tutoring practices and strategies are not made accessible to parents.

The majority of the research on parent tutoring has been carried out by researchers or clinicians in clinic or contrived school settings (Erion, 2006). Although training in structured settings by highly-trained personnel is important and useful for demonstrating empirical support for intervention strategies, this mode of service delivery does not present a cost-effective or accessible method for teaching parents tutoring skills as any parents do not have access to clinics or opportunities to participate in research. Researchers have yet to examine the effectiveness of training parents to implement evidence-based tutoring procedures in applied settings, with teachers as parent trainers. Providing parent training in school settings and using teachers as trainers is likely to create a system in which parent training can become a sustainable component of school programming. It is imperative for researchers to examine effective and efficient training procedures that teachers can easily implement to encourage parent involvement in reading at home.

Parent tutoring can provide schools with a cost-effective way to enhance parent involvement and provides students with additional learning opportunities outside of the school day. Increased parent involvement is associated with various positive outcomes for students, including increased achievement, better attendance, improved behavior, and completion of homework (Epstein, 2001). Although there are many benefits of parent involvement, parents are often unsure how to assist their children (Epstein & Hollfield, 1996). Therefore, providing a structured means for parents to become involved in their children's education and learn evidence-based strategies will benefit students, parents, and teachers.

Parent Tutoring

Parent tutoring has been used successfully to increase children's oral reading fluency (Hook & DuPaul, 1999; Duvall, Delquadri, Elliott, & Hall, 1992). Parents can be taught to use evidence-based strategies such as listening passage preview, repeated reading, phrase drill error correction, and performance feedback. Listening passage preview (LPP) provides modeling of fluent, accurate reading, as the tutor reads the passage aloud while the student follows along (Daly & Martens, 1994). Repeated reading (RR) increases student's opportunities to respond, as the student reads the same passage repeatedly (Rashotte & Torgenson, 1985). Phrase drill error correction (PD) provides students with additional opportunities to practice words read incorrectly during reading. Specifically, following each reading, the tutor correctly reads the error word, and has the student read the word and then the phrase containing the error word three times (O'Shea, Munson, & O'Shea, 1984). A final component used to improve reading fluency is performance feedback (PF), which provides students with continuous feedback about progress. A common method of PF is to report or graph the number of words read correctly and incorrectly (Eckert, Dunn, & Ardoin, 2006). Combining these strategies has resulted in strong tutoring packages and improvements in reading fluency (e.g., Daly, Persampieri, McCurdy, & Gortmaker, 2005; Daly, Shroder, & Robinson, 2001/2006; Gortmaker, Daly, McCurdy, Persampieri, & Hergenrader, 2007).

Training Models

To create lasting change in teacher and parent behavior, an effective and efficient training model is needed. Effective training techniques described in the literature include modeling, role-playing, feedback, and in-class direct training. Although these procedures are effective, the efficiency of training procedures can be enhanced through the use of technology (Slider, Noell,

& Williams, 2006). Research indicates video training is an effective and acceptable means for teaching skills to parents, teachers, and staff (Blom-Hoffman, O'Neil-Pirozzi, Volpe, Cutting, & Bissinger, 2006; Macurik, O'Kane, Malanga, & Reid, 2008). There are many advantages of video-based training including the standardization of training (information provided consistently), cost and staff time efficiency, and the opportunity for participants to observe people similar to themselves model the strategies. This project combined video training, written instructions in a manual, and a brief practice session with feedback to maximize the effectiveness and efficiency of training. In addition, to enhance generalization of skills and ease of implementation, materials (e.g., laminated steps, graph) designed to prompt trainees to use the strategies were provided.

Purpose

In practice, schools are in dire need of effective and efficient programs that improve student reading achievement. Although general research has been conducted on family literacy programs (Epstein, 2001), little to no research has been done on specific skills-based parent tutoring for improving reading fluency in schools. The purpose of this project was to bridge the research-to-practice gap by training teachers to engage parents in the use of evidence-based tutoring strategies. As teachers and parents have limited amounts of time to meet with one another and work with students, we sought to develop efficient training and tutoring procedures. Consumer acceptability of the training and tutoring strategies was collected to inform future development and implementation of evidence-based programs in schools. This project built on previous research by utilizing teachers in schools as parent trainers and using video training as a primary means of information delivery and skill development. The following questions and hypotheses were examined:

1. Can teachers train parents with fidelity to use evidence-based tutoring strategies following minimal training (i.e., video modeling plus practice with peers)? It was hypothesized that teachers would show improvements in their parent training skills and deliver training with high fidelity, as they learned new information and had an opportunity to practice implementation of the strategies with a peer.
2. Can parents tutor their children with high fidelity following video plus practice and feedback delivered by trained teachers? It was hypothesized that parents would use tutoring strategies more effectively as a function of having been trained by teachers and would implement the tutoring program with high fidelity.
3. Does students' oral reading fluency (ORF) improve and maintain when parents implement tutoring strategies? It was hypothesized that students' ORF would increase during tutoring because the tutoring provided students with additional opportunities to practice reading with guidance and feedback.
4. Do teachers, parents, and students rate the training methods and procedures and the tutoring strategies as acceptable? It was hypothesized that teachers, parents, and students would rate the procedures and strategies as acceptable because the strategies have been shown to be effective and require a short amount of time (i.e., 20 minutes) to implement.

Method

Participants

All participants were appropriately protected and informed prior to participation. This project met the standards of the University of Nebraska-Lincoln's Institutional Review Board and the school administrator. Three first grade teachers at a private Midwestern school were recruited by the administrators. Interested teachers met with the researcher who described the

study and reviewed the information presented in the consent form (e.g., procedures, time requirements, benefits, risks, etc). Teacher consent was obtained prior to participation.

Eight students and their parents were recruited by the participating teachers. Specifically, teachers identified students in their classroom needing additional support with reading fluency and contacted their parents to determine their interest. Prior to participation, parental consent and child assent were obtained. Eight first grade students (mean age, 6.75; range, 6 to 7) and their parents (seven mothers, one father) agreed to participate. Seven of the students were Caucasian and one was Hispanic. None of the students were receiving special education services.

Measures and Data Collection

Oral reading fluency. Oral reading fluency (ORF) was used to assess the generalized effects of parent tutoring as it is a valid and reliable indicator of reading competence (Fuchs, Fuchs, Hosp, & Jenkins, 2001). Correctly read words per minute (CWPM) and errors per minute (EPM) were calculated in first grade level AIMSweb progress monitoring probes to assess the generalized effects of parent tutoring. Three probes were randomly administered each week and the median score was recorded. Words were scored as correct if the student pronounced the word correctly within 3 s. Words were scored as errors if the student omitted, mispronounced, substituted, or failed to produce a word within 3 s. The mean rate of growth per week was also calculated by subtracting the last data point from the first data point for each phase and dividing by the number of weeks in the phase.

Skill and treatment fidelity. Procedural checklists were used to assess the percentage of skill steps completed by teachers and parents (see Appendices A and B for the procedural checklists). Specifically, teachers were rated on their skill in providing parent training and parents were rated on their skill in tutoring. To derive an exact percentage of treatment

adherence, sessions were audio recorded and scored by a trained impartial rater using the corresponding procedural checklist. The percentage of steps completed per session was calculated by dividing the number of steps completed by the total number of steps for which there was an opportunity to complete.

Consumer acceptability. Modified versions of the Intervention Rating Profile-15 (IRP-15) and the Child's Intervention Rating Profile (CIRP) were used to assess the acceptability of the training and tutoring procedures following the training sessions. Modifications for the present project included changing the item wording on both questionnaires to reflect the tutoring program (i.e., treatment will be replaced with tutoring program, behavior problem will be replaced with reading problem, classroom will be replaced with home for the parent version). The IRP-15 is a 15-item questionnaire that assesses perceptions of the general acceptability of interventions. Parents and teachers rated each statement on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The CIRP is a 7-item questionnaire that assesses children's perceptions of the acceptability of interventions using a 5-point point Likert scale, ranging from 1 (disagree) to 5 (agree). Mean item ratings are calculated by dividing the sum of the ratings by the total number of items administered.

Research Design

An A-B design was used to assess the effects of the teacher and parent skills training. During baseline, teacher skills were evaluated during analogue sessions with graduate research assistants serving in the roles of parent and child. Teachers were asked to model how they would teach a parent to tutor their child to improve reading fluency. Teachers were evaluated using the corresponding procedural checklist. Following baseline, teachers received training via a manual and video. Teachers were asked to practice training parents in role-play interactions with one

another until reaching the mastery criterion (i.e., 100% of the steps completed on three consecutive role-play sessions). Generalization of the teacher's skill in training parents was assessed during parent training sessions with participating families.

Across conditions, parent tutoring fidelity was evaluated using the corresponding procedural checklist. During the baseline phase, parents were asked to record themselves helping their child with reading three times per week. Following baseline, teachers met individually with parents to provide direct skills training. During the meeting, parents practiced the tutoring program with their child in the presence of the teacher. Following the training, parents were asked to record themselves helping their child with reading using the tutoring program (i.e., termed Interactive Reading) three to four times per week.

A multiple-baseline across students (Baer, Wolf, & Risley, 1968) was used to examine the effectiveness of parent tutoring on students' oral reading fluency. Within multiple-baseline designs experimental control is demonstrated when there is a change in the dependent variable (i.e., increase in skills, reading fluency) upon implementation of the independent variable (i.e., training or tutoring) while other baselines remain stable. Students' ORF was assessed weekly in progress monitoring probes during baseline and parent tutoring. The experimenter administered three progress monitoring probes for 1 minute each, scored CWPM and EPM for each passage, and recorded the median score for each week. During the baseline phase, parents were asked to help their child with reading three times per week. Following baseline, parent tutoring was introduced sequentially across students and implemented for eight weeks. After approximately eight weeks of tutoring, parents were then given the choice of strategies to use and student performance was measured for two additional weeks (i.e., follow-up).

Intervention

Teacher skill training. Teacher training included review of a manual and video and practice with peers. The manual and 30-minute video (available upon request from the author) included the following segments: (a) benefits of parent involvement and tutoring, (b) introduction to a tutoring program (i.e., Interactive Reading) based on evidence-based tutoring strategies, (c) considerations for implementation tutoring, (d) steps for parent training, and (e) how to monitor student progress. The segments included descriptions, specific steps, and demonstrations. After reviewing the materials, the teachers were asked to practice the parent training procedures in role-play sessions with one another alternating roles as the teacher, parent, and child. After each role-play, the individuals playing the role of parent and child assessed the teachers' completion of the skill steps following the outlined training steps and provided feedback regarding the steps completed correctly and incorrectly.

Parent skill training. Parent training was delivered by teachers who completed the training. Each teacher trained two to four parents to use the tutoring program. Prior to meeting with the teacher, parents reviewed a manual and 30-minute video similar to that of the teachers (i.e., two sections were eliminated: steps for parent training and how to monitor student progress). During the meeting, the teacher provided a brief review of the tutoring strategies with rationales, developed a tutoring plan, and practiced the tutoring program. The tutoring plan included when, where, and how frequently tutoring was to occur. Following discussion of the program and plan, the teacher provided feedback as parents practiced the tutoring program with the student. At the end of the session, parents were given materials for implementation and asked to return the tutoring binder to school each week.

Parent tutoring using Interactive Reading. Once parent training was complete, parents were asked to use the tutoring program with their child at least 3 days per week for a period of 8 weeks. Books were individually selected by having students read for one min from a book and calculating the percent accuracy of reading. Four books that were read at the instructional level (i.e., 93 to 97% accuracy) were sent home with the students each week. The parent completed a tutoring record (i.e., days tutored, minutes per session) for each session and returned the completed tutoring records to the teacher trainer weekly. Following the weekly assessment with the researcher, a new tutoring record and materials were sent home with the students.

To begin each tutoring session, the parent placed the necessary materials (i.e., pencil, passage, and tape player) on the table. Five steps were completed during each session. First, the parent and child completed the pre-check in which the parent timed the student reading the passage for 1 minute and graphed the number of words read correctly and incorrectly. Second, the parent read the passage as the student followed along with his or her finger (i.e., LPP). As the student listened to the story, the parent monitored to ensure the student was following along and guided the student to the correct location if he or she is not following along accurately. Third, the student practiced reading the story aloud two times (i.e., RR) with feedback. Specifically, following each reading, the parent corrected student errors by reading each error word, and then having the student read the word and the phrase that includes the word three times (i.e., PD). Fourth, the parent and child completed the post-check using the same procedures as the pre-check. Lastly, although comprehension skills were not the focus of the tutoring, the parent and student discussed the passage using post-reading strategies, such as answering wh- questions (e.g., who was the story about, what happened in the story).

Interrater agreement. Interrater agreement was calculated for oral reading fluency measurements by dividing the number of agreements (i.e., both observers scored the same word as correct or incorrect) by the number of agreements plus disagreements and multiplying the result by 100. Mean interrater agreement was 98% (range, 78 to 100%). For teacher skills, interrater agreement was calculated by dividing the number of agreements (i.e., both observers scored the same component as completed or not completed) by the total number of agreements plus disagreements and multiplying the result by 100. Mean interrater agreement was 86% (range, 82 to 91%).

Results

Teacher Parent Training Skill and Fidelity

The percentage of parent training steps completed by each teacher during analogue baseline meetings and intervention parent training meetings is presented in Figure 1. During baseline, teachers completed an average of 18% of the parent training steps (Teacher 1 and 2= 15%; Teacher 3= 22%). Following the training, the teachers completed an average of 78% of the steps during meetings with participating parents and students. While Teacher 1 implemented an average of 90% of the steps during the parent trainings, Teachers 2 and 3 implemented an average of 67% and 64% of the steps, respectively (the arrows on Teacher 2's graph indicate the data are based on 18 and 19 steps as the audio recording was terminated prior to the end of the meeting and the steps could not be scored). Given the differences in training fidelity, results for parents and students are presented by those trained with high fidelity (i.e., Teacher 1; above 85%) and those trained with moderate fidelity (i.e., Teachers 2 and 3; 60%-85%).

Parent Tutoring Fidelity

Thirty percent of the recorded tutoring sessions were analyzed for parent tutoring behaviors. Table 1 shows data on parent use of the tutoring strategies prior to and following training. Fidelity of implementation by component for parents trained with high fidelity (i.e., above 85%) and those trained with moderate fidelity (i.e., 50-85%) are presented in Table 2.

High fidelity. Data demonstrate parents trained with high fidelity used few evidence-based tutoring strategies when asked to help their child with reading at home prior to training (i.e., 16% of steps). Following training, the percentage of tutoring steps completed by parents trained with high fidelity (i.e., Teacher 1) increased to an average of 88% (range, 60 to 88%). No data were available for Donna as the recordings were not returned. Table 2 shows that parents did not routinely implement the tutoring components prior to training. Following training, parents implemented the majority of the steps (i.e., Attention, Pre-Check, Show, Practice 1 During, Post-Check, and Discuss) at or above 90% the sessions. Parents did not routinely implement phrase drill error correction (25% on first practice, 15% on second practice) or the Practice 2 During (50% of the sessions).

Moderate fidelity. Parents who received moderate fidelity training completed an average of 21% of the tutoring steps during baseline. After training, the parents completed an average of 52% (range, 39 to 87%) following parent training. These parents also failed to implement the second practice and phrase drill error correction on the majority of the sessions. Across baseline sessions, parents routinely corrected student errors during a single reading of a text, but the remaining components were either not used or implemented less frequently. Following training, parents implemented attention and pre-check above 90% of the sessions. Parents failed to routinely implement phrase drill error correction (17% on first practice, 13% on

second practice) or the Practice 2 During (26% of the sessions) to a greater extent than parents trained with high fidelity. Although there was a decrease in use of Practice 1 During, there was an increase in the use of the Pre-Check, which required the student to read the text one time, similar to what parents had children do during baseline sessions.

Oral Reading Fluency

The number of correctly read words per minute and errors per minute during baseline, Interactive Reading sessions, and Parent Choice sessions for each student are presented in Figures 2 and 3. During baseline, parents were asked to record themselves helping their child with reading at least three times per week. With the exception of Andrew, all students' levels of reading fluency exceeded baseline levels.

High fidelity. Visual inspection of the data shown in Figure 2 indicates students showed consistent performance during baseline, with the exception of Nichole. Students demonstrated an average of 22.3 CWPM (range, 15.4 to 24.8) with 7.7 errors (range, 5 to 9.4). Mean rate of growth per week was 0.9 words (range, -0.2 to 2.6). Upon implementation of Interactive Reading, students demonstrated increases in the number of CWPM to an average of 39.4 (range, 25.3 to 56.8) and a decreases in errors to 5.8 (range, 1.8 to 9.5). Students' rate of growth accelerated to a mean of 2.2 words per week (range, 0.82 to 4.4), surpassing the expected rate of 2 words per week for first grade students (Fuchs, Fuchs, Hamlett, Walz, & Germann, 1993). During the follow-up phase phase, parents were asked to continue practicing reading with their child using strategies of their choice. The average number of CWPM increased to 51.6 (range, 31.5 to 73) and errors decreased to 5.5 (range, 2 to 8). Hannah and Tiffany demonstrated a slight decrease, but their ORF remained above baseline levels.

Moderate fidelity. All of the students demonstrated stable baselines except Andrew who showed a significant increasing trend (see Figure 3). Overall, during baseline, students read an average of 36.7 CWPM (range, 17.3 to 65.3) with 6.4 errors (range, 2.75 to 8) and demonstrated a mean rate of growth of 1.7 words per week (range, -1.2 to 8.6). During tutoring with Interactive Reading, the number of CWPM increased to an average of 49.4 (range, 23.7 to 75.6) and errors decreased to 4 (range, 1.1 to 5.1). The mean rate of growth per week was 0.1 words (range, 0.4 to 1.8). During the follow-up phase, the average number of CWPM increased further to 54.1 (range, 31 to 77) and errors decreased to 3.5 (range, 1.5 to 5.5). Student performance remained above baseline levels with the exception of Andrew.

Intervention Acceptability

Following completion of the study, the students completed the Child's Intervention Rating Profile. Each item was read aloud to the student and the student rated the statements on a 5-point Likert scale. Analysis of student ratings revealed that the mean item rating across students was 4.3 (range, 3.2-5), indicating a high level of acceptability. Additionally, parents and teachers rated a series of statements using a 6-point Likert scale on the Intervention Rating Profile (IRP-15). The mean item rating on the IRP-15 was 5.3 (range, 4.3-5.9) for parents and 5.8 (range, 5.3-6) for teachers, suggesting a high level of acceptability of the procedures.

Discussion

The purpose of this study was to examine the effectiveness of parent tutoring in a school setting with teachers as the parent trainers. Following the manual plus video training, teachers showed improvements in parent training, but provided training with varying levels of proficiency. Parents also demonstrated increases in tutoring skills, but those trained with higher fidelity provided tutoring with greater fidelity than those trained with moderate fidelity. Most

importantly, consistent with previous research, implementation of evidence-based parent tutoring resulted in improvements in students' oral reading fluency, especially for those whose parents received high fidelity training (Daly, Persampieri, McCurdy, & Gortmaker, 2005; Gortmaker, Daly, McCurdy, Persampieri, & Hergenrader, 2007; Hook & DuPaul, 1999). Lastly, teachers, parents, and students rated the training methods and procedures and tutoring strategies as acceptable.

An interesting finding of this study was the variability in fidelity across teacher trainers and parent tutors and the impact of fidelity on students' reading fluency. Future research should examine more comprehensive and direct, yet practical and efficient methods for training teachers. For example, researchers might investigate the application of a pyramidal training model (e.g., Shore, Iwata, Vollmer, Lerman, & Zarcone, 1995) in which a group of teachers receive direct behavioral skills training and then serve as trainers for others in the school. Pyramidal training provides an efficient and potentially sustainable method for dissemination. To increase the cost-effectiveness of training, future studies should also evaluate the group parent training as way to engage parents in learning strategies to improve their children's reading fluency.

As the tutoring program resulted in improvements even when parents implemented the procedures with moderate levels of integrity, some of the intervention components may not be necessary. Eliminating some of the strategies that were not frequently used (i.e., additional reading practice and phrase drill error correction) would decrease parents' response effort and may increase fidelity (Friman & Poling, 1995). In addition, modification of the strategies to be more consistent with parents' baseline practices could also help to increase fidelity (Detrich, 1999). Although a component analysis was not completed, it appears that repeated reading is an

essential component for building reading fluency and should not be eliminated despite the fact that parents do not typically use repeated readings unless instructed.

A unique component of this study was the use of teachers as parent trainers. Preparing teachers to serve as parent trainers is imperative for dissemination of evidence-based tutoring strategies for reading fluency. Training provided to teachers was efficient and flexible, only requiring approximately one and a half hours of time (i.e., 30 min review of manual, 30 min video, 30 min practice with peers) and allowing teachers to study the materials at a convenient time. Although the training materials directed teachers to practice the parent training skills with peer teachers until reaching the mastery criterion (i.e., correct implementation of all steps on two consecutive practices), the teachers did not complete the required number of practices prior to scheduling meetings with the participating parents. Consequently, the data show that some teachers may require direct feedback from a skilled trainer in order to provide training to parents with high fidelity. Although this study showed that quality parent training is imperative to the success of parent tutoring, it is possible that some of the components included in the outlined training procedures are not necessary or practical. For example, all teachers failed to have parents practice the tutoring procedures a second time due to time constraints. Presently, it is unclear if two practices are necessary for parents to master Interactive Reading. This information would be useful for future refinement of training procedures.

Another novel component of this study was the examination of parent use of strategies prior to training. Although teachers often ask parents to read with their children to enhance reading development, little is know about what parents do without training. Results showed parents did not use evidence-based strategies when helping their children. Most notably, during baseline, none of the parents used repeated readings of the text which is a critical component for

improving reading fluency. Following training, parents were more likely to implement the majority of strategies, but frequently omitted the additional practice with feedback and phrase drill error correction. It is unclear if the additional practice with feedback was a necessary component of the tutoring procedures as students still engaged in three repeated readings of the text (instead of four as outlined). Furthermore, phrase drill error correction may have been difficult for parents to implement as the procedure was very different from typical correction practices used by parents during baseline sessions. Alternative error correction strategies that more closely align with typical practices parents use may lead to enhanced fidelity.

Above and beyond the demonstrated improvements in oral reading fluency, anecdotal reports from parents and teachers indicated improvements in student confidence in reading and reading comprehension. Objective examination of these variables would provide additional information about the effectiveness of tutoring. In addition, researchers should consider including additional dependent measures such as parent and student engagement in tutoring and the quality of home-school relationships.

Several limitations of this study should be noted. First, the majority of the parent participants appeared to be motivated and involved in his or her student's education prior to implementation of the tutoring program; however some parents may need additional motivation to use a tutoring program. For example, Danielle's mother failed to return materials and did not appear to implement the program during the intervention weeks. Encouraging teachers to provide ongoing performance feedback to parents on implementation and sharing student growth in oral reading fluency may increase parent fidelity of implementation (Codding, Feinberg, Dunn, & Pace, 2005; Hagermoser Sanetti, Luiselli, & Handler, 2007; Noell, Witt, LaFleur, Mortenson, Ranier, & LeVelle, 2000).

It is also important to consider that parent tutoring may not be an appropriate intervention for some students as external factors may impact parents' ability to provide tutoring (Allen & Warzak, 2000). For example, parents may have difficulty finding time to tutor if they work extended hours and care for multiple family members (Christenson, 2004; Miller & Kratochwill, 1996). Furthermore, parents' knowledge and skill in reading, and their perceptions of their own skills also influences the likelihood of parents providing assistance for academic tasks (Hoover-Dempsey et al., 2005). Additional information is needed for identification of parent tutoring candidates and ways to encourage implementation for those who do not routinely implement the tutoring program.

A second limitation was the varying levels of oral reading fluency at which students began the program. Teachers referred students in need of additional support with reading fluency, but there was great variability amongst referred students (ORF range, 14 to 58). Additionally, it is important consider how individual student's scores impacted the average performance of the students. For example, Andrew's increasing trend during baseline appeared to skew the average growth rate and mean change across phases. Future research should use more objective inclusion criteria for reading fluency programs, such as performing below national benchmarks on ORF.

Given the dismal statistics on student reading performance at the national level, schools are in dire need of methods to enhance student reading development. This study evaluated the impact of parent tutoring on students' reading fluency by preparing teachers to train parents as tutors. Additional research on parent tutoring in school settings is essential to dissemination of evidence-based tutoring practices. Further refinement of parent training and parent tutoring

procedures would be beneficial in order to provide schools with a meaningful way to collaborate with parents and improve students' reading fluency.

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Table 1.

Mean Fidelity of Tutoring Step Implementation Across Baseline and Post-Training Sessions by Parent and Level of Training Fidelity

Teacher	Parent (Student)	Baseline Mean Tutoring Steps Completed	Post-Training Mean Steps Completed
Teacher 1 (high fidelity)	Holly (Hannah)	22	60
	Nora (Nichole)	11	78
	Donna (Danielle)	--	--
	Tara (Tiffany)	15	88
	Mean	16	75
Teachers 2 and 3 (moderate fidelity)	Christine (Cory)	22	40
	Kristin (Karen)	22	39
	Ann (Andrew)	29	87
	Todd (Tanya)	11	42
	Mean	21	52

Table 2.

Mean Fidelity of Tutoring Steps by Level of Training Fidelity Across Phases

	High Fidelity		Moderate Fidelity	
Step	Baseline	Post-Training	Baseline	Post-Training
Attention and Praise for good behaviors	60	100	50	96
Pre-Check	0	90	0	100
Show	10	95	50	74
Practice with Feedback (1)				
During: child reads, parent corrects errors	50	90	100	43
After: phrase drill error correction	0	25	0	17
Practice with Feedback (2)				
During: child reads, parent corrects errors	0	50	0	26
After: phrase drill error correction	0	15	0	13
Post-Check	0	95	0	65
Discuss	10	90	8	57

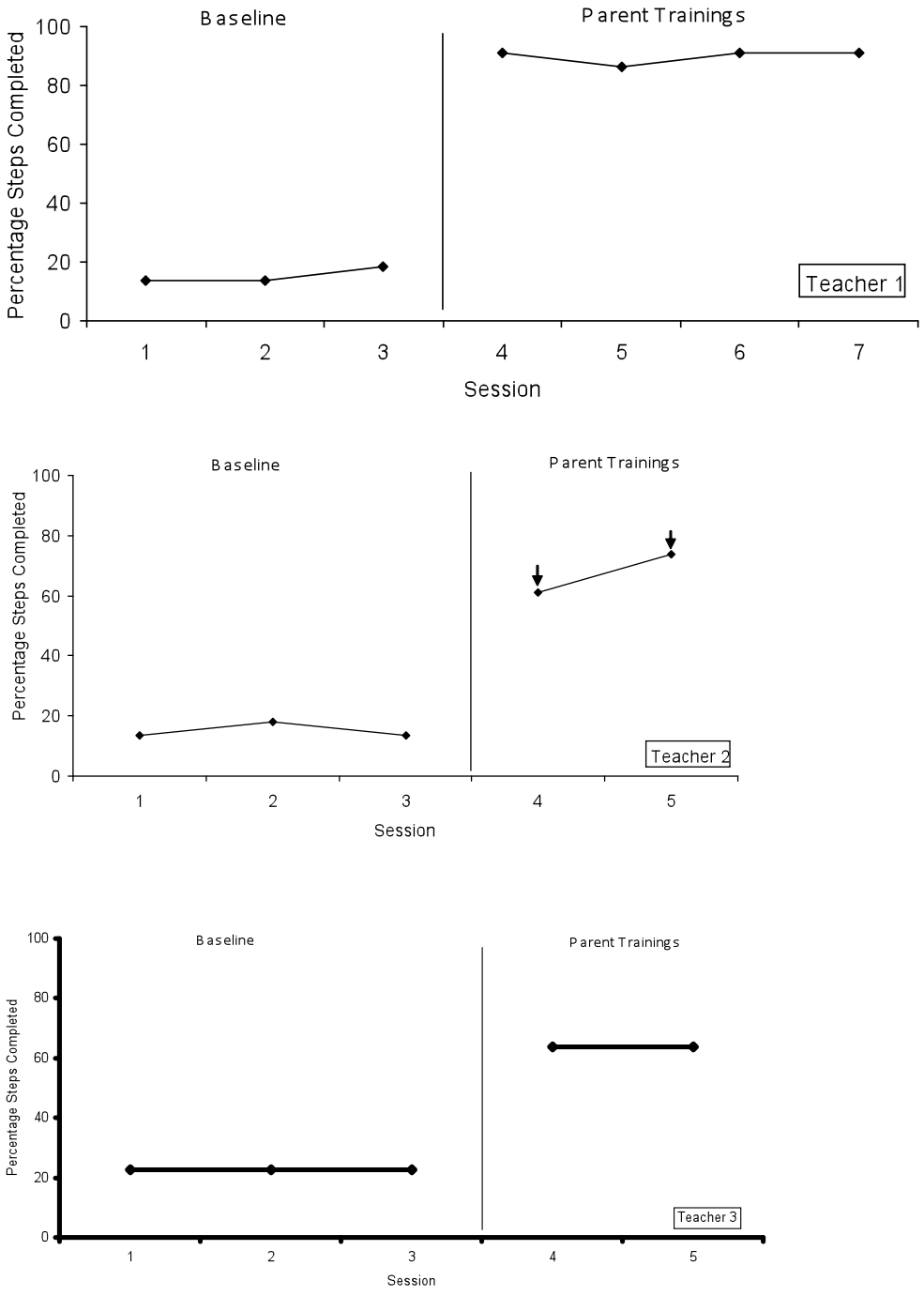

Figure 1. Percentage of parent training skill steps completed each teacher during baseline and parent training sessions. Arrows indicate the data are based on 18 and 19 steps as the audio recording was terminated prior to the end of the meeting and the steps could not be scored.

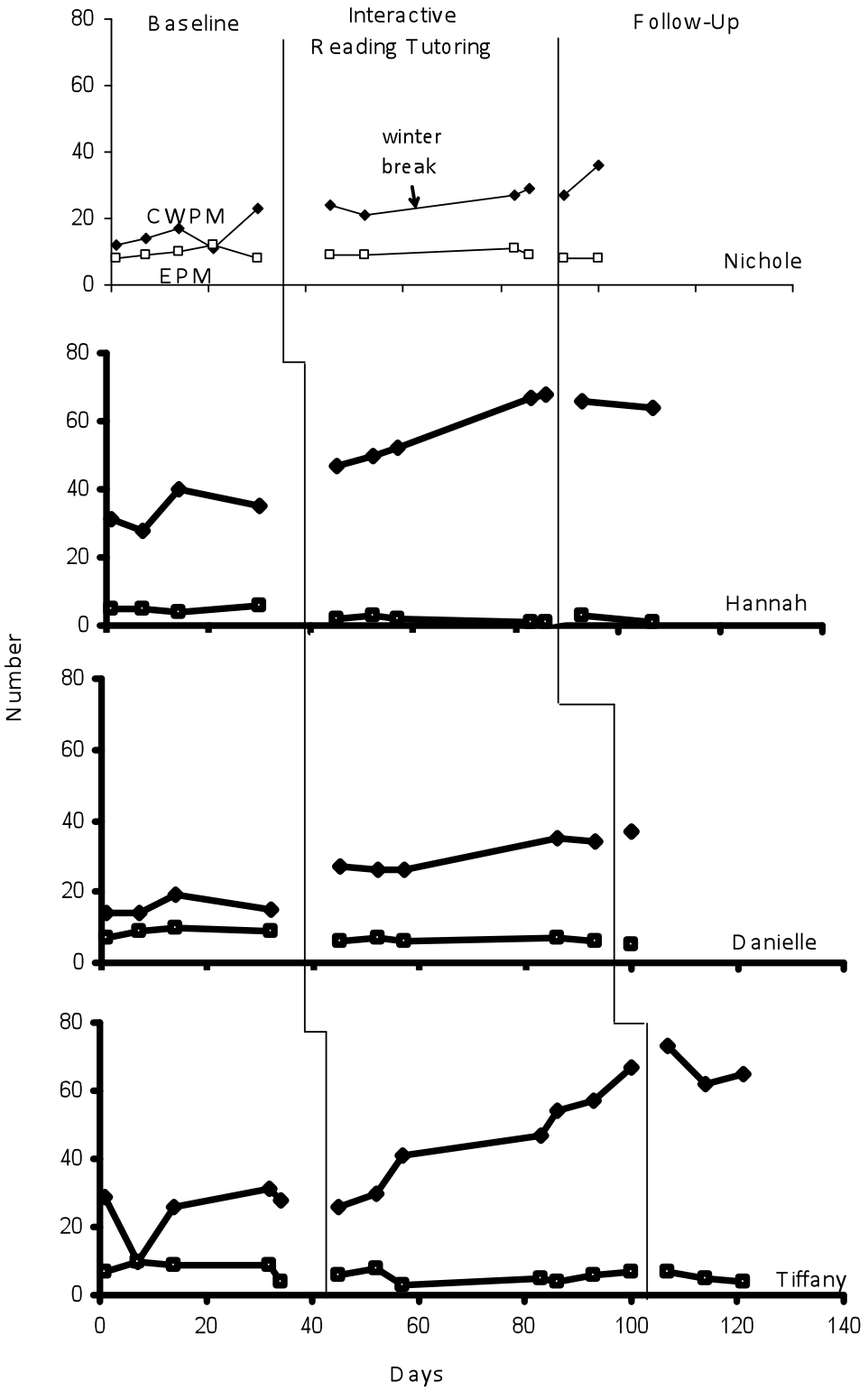

Figure 2. Number of words read correctly per minute and errors per minute for each student during baseline and Interactive Reading sessions.

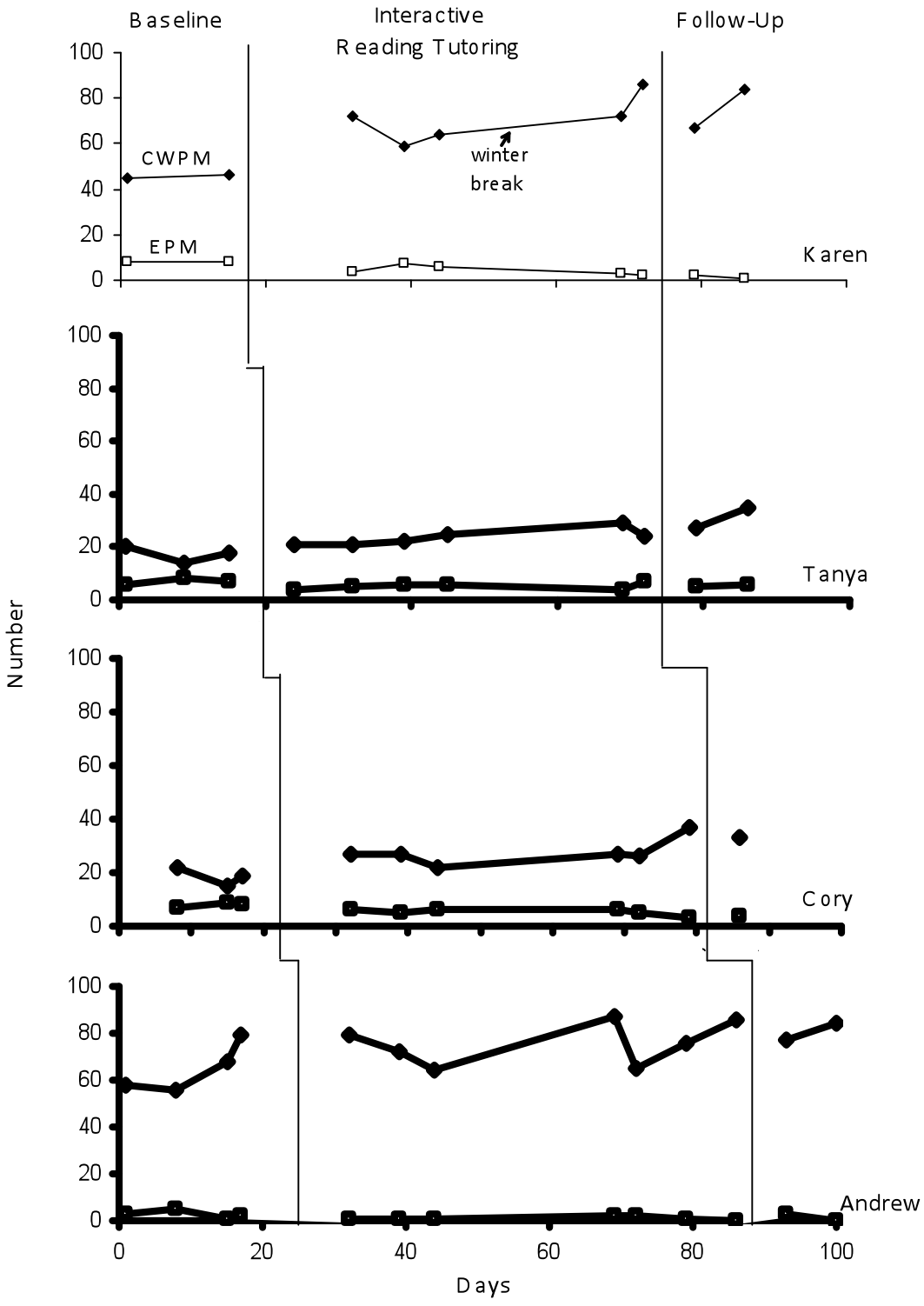

Figure 3. Number of words read correctly per minute and errors per minute for each student during baseline and Interactive Reading sessions.

Appendix A. Parent training procedural checklist

Steps	Date and Session Number				
Things to Keep in Mind Throughout the Training					
1. Frequently provide parent and student with positive statements regarding attendance, effort, correct implementation	☐	☐	☐	☐	☐
2. Answer parent questions	☐	☐	☐	☐	☐
3. Ask for and acknowledge parent input about the process, tutoring, and ideas to help with consistent implementation	☐	☐	☐	☐	☐
Welcome and Review of Tutoring					
4. Welcome and plan for the meeting	☐	☐	☐	☐	☐
5. Provide general rationale for practicing reading	☐	☐	☐	☐	☐
6. Ask parent and student to provide a rationale	☐	☐	☐	☐	☐
7. Review tutoring steps and rationales/reasons why	☐	☐	☐	☐	☐
8. Praise	☐	☐	☐	☐	☐
9. Pre-Check	☐	☐	☐	☐	☐
10. Show	☐	☐	☐	☐	☐
11. Practice with Feedback	☐	☐	☐	☐	☐
12. Post-Check	☐	☐	☐	☐	☐
13. Discuss	☐	☐	☐	☐	☐
Tutoring Practice					
14. Have parent practice steps of reading program with the student	☐	☐	☐	☐	☐
15. Provide praise for correct steps	☐	☐	☐	☐	☐
16. Provide feedback for incorrect or missing steps	☐	☐	☐	☐	☐
17. Have parent practice until 100% of steps are met on 2 consecutive practices	☐	☐	☐	☐	☐
Planning with Parent to Use the Program					
18. Plan for home implementation (Complete “Our Reading Practice Plan”)	☐	☐	☐	☐	☐
19. Provide parent with contact information	☐	☐	☐	☐	☐
20. Ask parent best time and method to contact him/her	☐	☐	☐	☐	☐
21. Summarize reading practice plan	☐	☐	☐	☐	☐
22. Thank parent and student for attending training	☐	☐	☐	☐	☐
Total number of steps completed correctly	/22	/22	/22	/22	/22

Appendix B. Parent tutoring using Interactive Reading procedural checklist

Step	Date and Session Number				
Attention and Praise for good behaviors	☐	☐	☐	☐	☐
Pre-Check	☐	☐	☐	☐	☐
Show	☐	☐	☐	☐	☐
Practice with Feedback (1) During: Reads each word the child struggles with and has child repeat After: Reads each hard word and has the child repeat the word and read the sentence three times	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Practice with Feedback (2) During: Reads each word the child struggles with and has child repeat After: Reads each hard word and has the child repeat the word and read the sentence three times	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Post-Check	☐	☐	☐	☐	☐
Discuss	☐	☐	☐	☐	☐
Total number of steps completed correctly	/9	/9	/9	/9	/9