Behavioral Skills Training and Literacy: Supporting Reading Instructors in Adult Education Centers

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BEHAVIORAL SKILLS TRAINING AND LITERACY: SUPPORTING READING INSTRUCTORS IN ADULT EDUCATION CENTERS

by

Mya L. Hernandez

A dissertation submitted to the Graduate College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Psychology

Western Michigan University

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Doctoral Committee:

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Richard Malott, Ph.D.
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Maria Malott, Ph.D.
ACKNOWLEDGMENTS

I would like to begin by acknowledging each of my committee members for the role they played in my personal and professional life. Dr. Dick Malott wooed me into Behavior Analysis with his “save the world” mentality. I would not be in this field if it were not for taking his course and being inspired by the application of Behavior Analysis in making the world a better place. Dr. Kelly Kohler was my first supervisor as I started my master’s degree and the one who taught me what excellent supervision looks like as well as how to implement evidence-based practices. She was an amazing mentor, and I have the utmost respect and admiration for her continued practice and presence in the field. Dr. Denise Ross is the reason I decided to pursue my doctorate in the first place. Through her advisement and mentorship over the past few years, I have learned and grown in ways I would never have imagined. I consider myself lucky to have been in her lab and witnessed her strength, perseverance, and aptitude as a woman of color in academia. Lastly, Dr. Maria Malott has been my role model from afar. She has been a beacon of Behavior Analysis across the world, and I am extremely grateful for her advisement and feedback on my dissertation.

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Mya Hernandez
The present study evaluates the effects of a behavioral skills training package (BST) on training adult literacy tutors to implement the steps of BST when teaching parents with low literacy. Four adult literacy tutors participated in the study along with one parent with low literacy. The primary dependent variable was the percentage of steps of the BST package implemented correctly during tutor training probe measures. Secondary measures were taken on the parent’s performance of each step of the literacy activities on which they were trained. In baseline, all tutors were provided with instructions for performing two literacy activities and tutors demonstrated how they would train each literacy activity with a parent or confederate researcher at their literacy site. During the BST session, tutors were trained on how to implement the BST package when training a parent on performing an Interactive Read Aloud literacy activity. Following the BST session, tutors again demonstrated how they would train each literacy activity as a maintenance measure. Their performance was probed in session with a parent when possible. Results suggested that following the BST session, tutor performance improved in implementing the steps of the BST package with parents and parent confederates during maintenance probes. Acceptability measures showed high approval ratings with the training package. Results are discussed with regard to practical considerations when training various populations.
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INTRODUCTION

Adult Literacy Needs

Proficient literacy transcends the ability to simply read and write. Though these behaviors are both important components of reading, the definition and purpose of literacy broadens as an individual progresses across their lifespan. The Programme for the International Assessment of Adult Competencies (PIAAC) defines literacy as “the ability to understand, evaluate, use, and engage with written text to participate in society, to achieve one’s goals, and to develop one’s knowledge and potential” (OECD, 2013). This definition portrays the broad scope of literacy through adulthood, and it underscores the challenges faced by nearly 36 million adults in the United States who have low literacy (OECD, 2013). Research has consistently shown low literacy to be correlated with adverse outcomes such as poverty and incarceration. According to the National Institute for Literacy (1998), 43% of adults with the lowest literacy level live in poverty and 70% of inmates have low literacy rates. Moreover, it is estimated that adults with low literacy add as much as $238 billion in costs to the U.S. healthcare system every year and costs at least $225 billion each year in non-productivity in the workforce, crime, and loss of tax revenue due to unemployment (OECD, 2013; Vernon, Trujillo, Rosenbaum & DeBuono, 2007).

U.S. citizens and native English speakers are only one part of the adult low literacy population. Adult immigrants and English Language Learners (ELLs) face additional challenges. In 2016 alone, 1.49 million foreign-born individuals moved to the U.S. and it is estimated that immigrants and their U.S.-born children accounted for approximately 27% of the U.S. population that same year (Zong, Batalova & Burrows, 2019). The National Research Council (2012) also estimates the largest subgroup of adults participating in adult education programs is adults learning English as a second language. The Council reported these adults
come from very diverse educational backgrounds ranging from highly educated and literate in their native language to little-to-no educational experience and illiteracy in their native language which presents an additional challenge for learning English.

**Parents with Low Literacy**

Parents with low literacy may affect their children’s literacy as well. The National Bureau of Economic Research reports that children of low literate parents have a 72% chance of reading at the lowest levels and are more likely to have poor grades, display challenging behaviors, have high rates of absenteeism, repeat levels of school, and even drop out (NCAL, 2015). A seminal study conducted by Hart and Risley (1995) indicated that children of low literate parents are exposed to 30 million fewer words in their homes and enter kindergarten with larger skill gaps compared to their peers. The 2007 report of results from the National Assessment of Adult Literacy noted that parents with lower literacy engaged in fewer literacy-related activities with their children and had fewer educational resources in their homes when compared to parents with higher reading proficiency (Kutner et al., 2007).

An emphasis on early childhood literacy is crucial for breaking this cycle, and parents are a critical component as first literacy teachers to their children. Increased parent involvement has consistently been associated with stronger pre-literacy skills for children (Arnold, Zeljo, Doctoroff, & Ortiz, 2008). Furthermore, parental engagement in children’s learning in the home has led to large gains in student achievement (Harris & Goodall, 2008). Despite these findings, more empirical research into parental involvement in student learning is necessary (Crosby, Rasinski, Padak, & Yildirim, 2015).
Community-based Tutoring Programs for Adult Literacy

Given the complexities of literacy, adult education programs that teach reading may be an important factor in improving the literacy outcomes of adults with low literacy. In these settings, adults receive literacy support through private and non-profit adult education programs that have been established to address the growing need for adult education services. In 2007, the Adult Education Program survey estimated there were 3,108 adult education programs offered across almost 30,000 different sites (Tamassia, Lennon, Yamamoto, & Kirsch). These programs have been primarily funded through the Workforce Investment Act, Title II, Adult Education and Family Literacy Act (National Research Council, 2012). However, in recent years the amount of funding from these organizations has decreased. While private funding sources in the form of grants and donations may be available, the amount of these funds may be insufficient to replace the amount of funding provided by government sources. To supplant their funding needs, an estimated 60% of adult literacy tutors are volunteers (Ziegler, McCallum, & Bell, 2007). With such limited resources, adult education community programs are mainly utilizing volunteer tutors to provide instruction.

While volunteer tutors benefit community organizations through the conservation of resources, the preparation of tutors is highly variable and training and professional development experiences are often limited or nonexistent (National Research Council, 2012; Perry & Hart, 2012). It has been suggested that training may have limited effectiveness due to the duration of training which varies across settings anywhere from 2-20 hours (Belzer, 2007). Moreover, Ceprano (1995) noted the instructional practices of tutors did not match the training they received, instead they reflected strategies aligned with their own learning experiences. Perry and Hart (2012) conducted a literature review on adult literacy educators and reported that both
certified and uncertified adult educators indicated feeling unprepared to work with adults with low literacy, regardless of their native language and background.

**Parent Literacy Interventions for Young Children**

While parents with low literacy are learning to read, their children are simultaneously in need of reading support. Given the important link between parent literacy and child literacy, there is a need for adult volunteers to support parents in their efforts to teach their children to read. Research has shown the tremendous effects parents can have on their child’s reading ability simply by speaking and reading to their children frequently (Hernandez, 2011); however, many parents are not aware of their potential influence (Luther, 2016) and do not always know ways in which they can support their children (Hernandez, 2011). It is crucial for parents to support literacy in their homes since achievement gaps are often established before children enter formal schooling (Lennox, 2013).

There are many evidence-based literacy practices that teachers conduct with young students that parents can do with their children to support learning and improve reading. According to the National Reading Panel, the crucial components of reading include alphabet knowledge, phonological awareness, print concepts, reading fluency, and oral language (2008). Despite this information, 37% of fourth-grade students fail to meet basic levels of reading achievement (McFarland et al., 2018). Furthermore, the fourth-grade reading achievement gap for students who are English language learners (ELL) is about 40 percentage points lower than their non-ELL peers (McFarland et al., 2018). It is paramount that both native and non-native English-speaking adults who struggle with literacy have the tools to support their children’s literacy.
According to the 2008 report by the National Early Literacy Panel, *alphabet knowledge* has been recognized as one of the strongest predictors of literacy achievement. In an alphabet knowledge activity, children are shown letters and asked to label each one by name or demonstrate the sound each letter represents. Jones and Reutzel (2012) conducted a study that evaluated the effectiveness of an enhanced alphabet knowledge--teaching one letter a day--compared to traditional alphabet knowledge--teaching one letter a week. They found that advanced alphabet knowledge instruction was 2.9 times more effective in increasing the number of benchmarked students on a reading fluency subtest. The researchers also noted that students learned letter sounds and names more quickly and were able to focus on improving other literacy skills. Positive results with implementation of an alphabet knowledge activity have also been demonstrated by Piasta and Wagner (2010) and Piasta, Purpura, and Wagner (2010).

*Interactive read alouds* with a focus on comprehension and vocabulary are another practice shown to be effective in improving literacy. In this activity, a teacher incorporates strategies that actively engage students in conversational exchanges surrounding the vocabulary and comprehension of a text (Lennox, 2013). Baker et al. (2013) evaluated the effects of an explicit read aloud intervention targeted at improving vocabulary and comprehension with first-grade students. In their study, they developed lessons specifying what teachers would deliver before, during, and after the intervention. Teachers in the comparison group also engaged in the literacy activity with their classes, but they were told to conduct the activity as they normally did--without the lessons developed by the researchers. Results indicate that both low and high-risk students in the intervention group outperformed comparable students in the control group on some measures such as narrative retell and vocabulary. The researchers noted that despite read aloud practices being commonplace in schools, there was much variability in how these practices
were implemented. Similar results on the efficacy of read aloud activities were reported by Fien et al., (2011), Pollard-Durodola et al., (2011), and Santoro, Chard, Howard, and Baker (2008).

**APPROACHES TO TRAINING COMMUNITY LITERACY VOLUNTEERS**

Despite a long history of federal funding for adult education programs, the National Research Council’s 2012 report highlighted a lack of “rigorous research” on effective approaches to adult literacy. Ziegler, McCallum, and Bell (2009) further emphasized that even fewer empirical studies have evaluated the practices of volunteer adult literacy instructors. Volunteer tutors play an instrumental role for adult education programs, allowing many programs operating on a low-budget to reach many adults in need; however, despite having such a large presence, it has been suggested that training programs may not be effective in adequately preparing these volunteers (Perry & Hart, 2012).

**Consultation Model**

A consultation training model can be an effective and practical way for consulting professionals to provide additional training and support to practicing professionals. This model is especially valuable for improving treatment fidelity for practitioners translating evidence-based research to a practical setting. Consultative models for training have been shown to be effective in multiple settings, but the majority of studies have been conducted in education environments serving PK-12 students and not in adult education settings.

Reinke, Lewis-Palmer, and Merrell (2008) evaluated the effectiveness of a school-based, class wide consultation model on teacher and student behavior. Four teachers were the primary participants and student behavior data were aggregated by class. In their study, a consultant evaluated occurrences of teacher praise and reprimands, and occurrences of student disruptive behavior, created a classroom intervention plan with measurable goals, e.g., setting a goal of
praise statements for the class period, had teachers self-monitor progress towards those goals, and provided visual feedback on daily goal performance. Results indicated rates of praise in all classrooms increased during the visual performance feedback phase and rates of reprimands decreased during that phase as well. Student behavior also decreased across all classrooms throughout the study, and notably, the greatest decreases were in the classrooms with the highest rates of praise. In the month follow-up, changes in student behavior remained low, but in three of the four classrooms teacher praise demonstrated a downward trend. Even though the consultation training was effective in producing immediate results, the researchers noted this model of training may not be sufficient to produce long-term change.

McKenney, Waldron, and Conroy (2013) conducted a study that evaluated the integrity with which three teachers implemented functional analyses (FA) with students in their classes. In their study, a behavioral consultant provided a training on conducting FA conditions which included a visual presentation, an overview, discussion, and development of operational definitions and other components of an FA, and mock FA sessions. Results indicated that for two of the teachers, procedural integrity increased following the training and all teachers reported high acceptability measures following the study. One limitation the researchers noted was the amount of time both the consultant and teachers put into the training. Due to this limitation, this training model would not be practical for some organizations.

**Coaching Model**

For some professions, ongoing and interactive professional development training in the form of coaching may be a more effective training model than consultation. A coaching training model is a practice similar to a consultative model where a professional with specialized knowledge and training in an area works directly with a trainee in improving a particular skill.
(Denton & Hasbrouck, 2009); however, in coaching models the consultant or “coach” continues to work with the trainee in situ. The coaching model is also primarily utilized in educational settings where teachers can receive continued support in subject areas such as literacy or behavior management strategies.

Duchaine, Jolivette, and Fredrick (2011) evaluated the effects of teacher coaching on teacher implementation of classroom management strategies over the course of the school year. The two dependent variables measured in their study were behavior specific praise statements (BSPS) made by the teachers and on-task behavior demonstrated by the students - both were measured across 15-minute intervals throughout math instruction. Following baseline measures, teachers received a training on teacher coaching and BSPS that included a power point, rationale, examples, and a discussion. Following the training, researchers provided a teacher coaching conference to teachers after every third session and gave feedback on their performance after each session. The results indicated that teacher coaching and feedback were effective in increasing teacher BSPS, though student on-task behavior measures showed no change. The researchers suggested that other practical strategies could be learned using this method.

Rudd, Lambert, Satterwhite, and Smith (2009) evaluated the effects of a two-hour workshop followed by a classroom coaching phase on increasing math mediated language in a university child development center. Following the baseline phase, the 12 teacher participants attended the researcher led workshop consisting of a lecture, live demonstration, and hands-on engagement. The coaching condition consisted of observation of teacher performance, feedback, and suggestions for increasing the usage of math mediated language for the next session. Researchers reported that all teachers increased their usage of math mediate language following only the workshop and additional increases occurred throughout the coaching condition.
Peer Model

Peer trainers are individuals from a target group who are trained to provide service in education programs (Khan, Nasti, Evans, & Chapman-Novakofski, 2009). The utilization of peers as trainers can save company costs and time (Finn & Sturmey, 2009), making it a practical training option for community organizations who may have limited resources. Peer training has been shown to be effective with both professionals and parents training their respective peers.

In a study conducted by Finn and Sturmey (2009), researchers investigated the efficacy of a peer staff training program to improve staff interactions with adults with psychiatric disorders and developmental disabilities. Each of the three peer trainers was trained individually by the experimenter prior to the start of the study. Once the peer trainers met mastery-criterion on training objectives, they then taught a peer staff worker to increase interactions with adult clients through a behavioral skills training method. The researchers noted an increase in the frequency of interactions across all three trainees following the peer-training program. They concluded that the peer-training program was effective in meeting research goals, though they could not draw conclusions on the maintenance or generalization of staff behavior. Ultimately, the researchers highlighted the advantages and effectiveness of peer training, especially with programs that may have budgetary constraints.

Pence, Peter, and Tetreault (2012) evaluated the effectiveness of teachers as peer trainers on training the implementation of preference assessments. Three teachers had previously been trained by a consultant to implement three different preference assessments. These teachers each trained two additional teachers (six overall), to implement one type of preference assessment. All teachers quickly met mastery criterion following the training from their peers. In their second experiment following a similar model, the eight teachers were successful in training 18
additional teachers. The researchers discussed the implications of successful peer training compared to hiring a consultant in saving time and financial resources.

In a commonly cited parent training pyramidal study, Neef (1995) evaluated the performance of parents of children with autism who received parent training from either a professional or peer parents. 26 parents participated and were divided into standard or peer training groups across three tiers. Two or three skills were identified to be trained depending on children’s needs and parent priorities. The parents in the first tier of the peer parent training group received parent training from a professional. Following the training, each parent in the first tier then trained a parent in the second tier, who then trained a parent in the third tier of the peer parent training group. The other group received standard parent training. Neef found that both groups made comparable gains on post training and maintenance probes, including those who served as peer trainers and those who did not.

**BEHAVIORAL SKILLS TRAINING**

Behavioral skills training (BST) is an evidence-based training package consisting of four components: instructions, modeling, rehearsal, and feedback (Gianoumis, Seiverling, & Sturmey, 2012; Nigro-Bruzzi & Sturmey, 2010; Ward-Horner & Sturmey, 2012). It is a strategy that uses both performance and competence-based measures, i.e., evaluating what the trainee does throughout the training as well as to what extent the trainee can perform the skill of concern (Parsons, Rollyson, & Reid, 2012; Parsons, Rollyson, & Reid, 2013). Moreover, best practice implementation of BST is considered data-based in that trainee performance is observationally defined and evaluated to ensure performance meets a specified mastery criterion (Parsons, Rollyson, & Reid, 2012).
In the field of applied behavior analysis, BST has been used to train behaviors across a variety of populations and professions. For example, Houvouras and Harvey successfully used BST to establish fire safety skills in adolescent boys (2014), Dogan et al. (2017) had positive results when using BST to train parents on teaching social skills to their children, and Dickson and Vargo (2017) demonstrated the effectiveness of BST in teaching kindergarteners how to respond appropriately during lockdown drills.

Research has consistently demonstrated the efficacy of BST. Homlitas, Rosales, and Candel (2014) utilized a BST package to teach three teachers from a therapeutic autism center how to perform three different phases of the Picture Exchange Communication System (PECS). Following the BST intervention sessions, all teachers performed at or above the set mastery criterion in natural environment and follow-up probes conducted with their own students.

In 2010, Nabeyama and Sturmey used a BST and a self-recording method to improve the guarding responses of staff in a special education classroom when they assisted students in ambulating. Not only did they demonstrate a generalization effect, but they also saw increases in the distances the students ambulated following the training. Notably, Nabeyama and Sturmey were able to achieve these results with non-specialized staff.

Nigro-Bruzzi and Sturmey (2010) were successful in using BST to teach special education therapists and speech therapists to perform mand training with children with autism spectrum disorder. These researchers were able to train the staff in less than three, 60-minute sessions. The child participants also showed increases in independent mands following the intervention which generalized to novel settings for three of the five children.

Over the past decade, BST has also been shown to be an especially effective means of training parents and caregivers. As referenced previously, Dogan et al. (2017) trained parents...
with BST to teach social skills to their children who had autism diagnoses. After the training, all parents showed improvements in engaging in the correct steps when teaching their children. Despite these improvements, some parents still required additional support, i.e., a self-monitoring procedure, to reach the specified mastery criterion. The child participants also demonstrated increases in correctly performing the target social skills. Dogan et al. specifically noted some parents may take longer to train than others; however, all parents met mastery criterion in a relatively short period of time, i.e., three, two-hour sessions or less.

Miles and Wilder (2009) evaluated the effectiveness of using a BST package to train caregivers to correctly implement guided compliance with children who exhibited noncompliant behaviors. Along with engaging in the four steps of BST, the researchers also provided graphic and vocal feedback on the caregivers’ performance during baseline. In post-training, the researchers provided feedback of the caregiver’s performance from the previous session, at the beginning of their next session. All caregivers met post-training mastery-criterion and child compliance improved for two of the three child participants. Miles and Wilder demonstrated the effectiveness of a BST package on training caregivers with little to no experience in behavior analysis.

Seiverling, Williams, Sturmey, and Hart (2012) demonstrated similar success in using BST to teach mothers with limited experience in behavior analysis to conduct a food selectivity treatment package in their homes with their children. In baseline and post-training phases, the mothers were only given written instructions on conducting the treatment package. Following the parent BST phase, all mothers implemented the food selectivity treatment package with high integrity and did not require booster sessions. Moreover, all children showed increases in bite
acceptance and anecdotal reports indicated an increase in the different types of food eaten by the children.

In a study conducted by Hsieh, Wilder, and Abellon (2011), caregivers were taught how to conduct an incidental teaching session with their child. During the training session, researchers provided graphic and vocal feedback to the caregivers from their baseline performance and used BST to teach the correct steps of the incidental teaching session. Once caregivers met mastery-criterion, they entered a feedback-only phase, followed by the post-training phase where they used incidental teaching to teach a skill they had never been trained on. The performance of all parents improved drastically; however, only one of the three children’s mand performance increased. In this study, Hsieh et al. saw effective results in a limited amount of training time.

As is evidenced by a review of current BST literature, BST has been used to train populations to perform behavior analytic techniques even when they have had little to no experience in behavior analysis. However, there are still populations for which the efficacy of BST has not yet been evaluated. One of these, is adult English literacy tutors. The current study will be a systematic replication of Parsons, Rollyson, and Reid (2013).

**Problem Statement**

36 million adults in the U.S. struggle with low literacy, many of whom are parents who require intervention for themselves and their children. The main service providers for this population are adult education tutors with little, if any, background in education, literacy instruction, or tutoring practices. Despite the existence of evidence-based training programs, there is a lack of research evaluating the use of these programs with adult education tutors.
METHOD

Participants

The primary participants in this study were four adult literacy volunteer tutors. These tutors were recruited from a local literacy council that provides services to both native and non-native English speakers in the community. Participants were men and women between the ages of 24 and 68 with varying years of experience tutoring adults. Tutor profiles are outlined below, and demographic information is summarized in Table 1.

Participants were recruited from a local adult education center, where the director expressed a need for additional training for volunteer tutors who work with parents. At this education center, new volunteer tutors complete a 12-hour training on general adult literacy practices, but do not review specific practices for tutors to support parents as first literacy teachers to their children; this is the need the director highlighted. Additionally, the director was in the process of creating a team of volunteer tutors specifically focused on parent literacy. These participants would be the first tutors on that team. Lastly, these participants were selected because they had no formal experiences with behavioral skills training.

Tutor one, Tutor 1, was a 24-year-old female who had been volunteering with the literacy council for six months. She had a bachelor’s degree in Interdisciplinary Studies and worked two part-time jobs outside of volunteering. During her time as a volunteer, Tutor 1 had worked with six different adults, three of whom were non-native English speakers. Tutor 1 completed the adult education center’s tutor training six-months prior to starting the study. Her training consisted of a general orientation to the local center which took place on one evening for an hour and a half, followed by a 12-hour training spread across four days. Tutor 1 reported that she was interested in receiving additional training and did not feel very prepared to tutor following the
center’s training program. Since that original training, she had not attended any additional trainings or workshops.

Tutor 2 was a 68-year-old male who had been volunteering at the literacy site for eight months. He had a bachelor’s degree and worked as an assistant in a classroom. Even though Tutor 2 had been volunteering at the literacy site for eight months, he had completed the program’s tutor training just four months prior to the start of the study. He went through training at a different time than Tutor 1, but he received the standard training consisting of the orientation and four training days. Tutor 2 reported that he had only worked with three different students, one of whom was a non-native English speaker. He also indicated that he felt somewhat prepared following the training and was not actively searching for additional training opportunities prior to the study.

Tutor 3 was a 67-year-old male who had been volunteering at the site for over a year. His highest level of education was a high school diploma and apart from volunteering, he had one of the few paid positions at the center as an office assistant. Tutor 3 had completed the same training as the other tutors more than a year prior to the study. As a tutor, he had worked with at least 12 adults, all of whom were native English speakers. Tutor 3 reported that following his training, he felt very prepared to tutor adults in literacy, but he has been looking for additional training opportunities and had not received any prior to the study.

Tutor 4 was a 32-year-old female who worked at the literacy site as a supervisor for the tutors for the past eight months. She was added to the study late, her data is reported, but she was not included in the multiple probe design. She completed the tutor training online over a year prior to the study. Her highest level of education was some college completed in pursuit of
an English degree. In her time at the site, she had worked with both native and non-native English speakers--at least 20 learners total.

The secondary participant in this study was a parent receiving one-on-one tutoring services at the literacy site. The Parent participant was a 47-year-old female who had been receiving services from the literacy site for three years. She had one daughter who was eight years old and was in the third grade. She learned about the literacy program through a recruitment flyer distributed at the center. The Parent was unemployed, and her independent reading level was at a primer reading level, about the equivalent of a kindergarten reading level. Despite her reading level, she was able to read the book for Reading Activity 1 and read the instructions for the activity. She reported she had never received any tutoring or information on how to work with her daughter on supporting her literacy. The remaining parents in this study were research assistants who served as confederate parents. Demographic information for the Parent and the Tutors is summarized in Table 1.

Table 1

Participant Characteristics

<table>
<thead>
<tr>
<th>Tutors</th>
<th>Age</th>
<th>Sex</th>
<th>Years Tutoring</th>
<th>Highest Level of Education Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor 1</td>
<td>24</td>
<td>F</td>
<td>6 months</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Tutor 2</td>
<td>68</td>
<td>M</td>
<td>8 months</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Tutor 3</td>
<td>67</td>
<td>M</td>
<td>1 year</td>
<td>High School Diploma</td>
</tr>
<tr>
<td>Tutor 4</td>
<td>32</td>
<td>F</td>
<td>8 months</td>
<td>Some College</td>
</tr>
<tr>
<td>Parent</td>
<td>47</td>
<td>F</td>
<td>3 years</td>
<td>High School Diploma</td>
</tr>
</tbody>
</table>

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Setting

This study was conducted at a local community adult education center in a midwestern city. The center was located in a building that housed other community support organizations. The adult education program operated out of the main floor of the building. Three different rooms in the community center were utilized for the study. The first room was a large, classroom type room with tables, chairs, and a projector. This room was typically used by the center for specific adult education classes or presentations. If this room was not available for use due to classes being scheduled or other events taking place, the kitchen area was used or a private conference meeting room. In the kitchen area, there was a kitchenette with cabinets, a refrigerator, and a microwave, and on the other side of the room was a large table with chairs around it. The adult education program primarily used this room for cooking or health literacy classes. This area was only used if the conference meeting room and classroom were occupied. The conference meeting room was a smaller room with one large table with chairs around it. It was primarily used by the program for board meetings or meetings with other organizations. For the study, only training sessions were conducted in the conference room.

Materials

BST Manual

A behavioral skills training manual was created by the experimenter and included a description and definition of BST, an outline of each of the steps of BST relative to a specific Reading Activity, and an overview of each of the skills to be trained and their crucial components (See Appendix B). The manual also included data sheets for tutors to record parent behavior and skill sheets to provide to parents listing each step of the activity.
**BST Fidelity Checklist**

A treatment integrity checklist was created by the experimenter to measure which steps of behavioral skills training were completed correctly by each tutor when training the parents. This checklist was also used to measure treatment fidelity during training sessions by an assistant researcher who was not participating in the training (See Appendix C).

**BST Script**

A training script was used for each training session. The script was divided into six sections corresponding to the six steps of BST (See Appendix D).

**Task Analysis Checklists**

Both reading activities were broken down into their component parts and listed on a checklist. The tutor used these checklists when observing the parents perform each activity. The experimenter also used these checklists when observing the tutors perform each activity during training sessions (See Appendix E). Both reading activities were taken from “The Essential Practices In Early Literacy” developed by the Early Literacy Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN) (2017). The activities were an *interactive read aloud* (Reading Activity 1) and an *alphabet knowledge* activity (Reading Activity 2).

**Baseline Reading Activity Description**

The instructions for each reading activity were put on a handout to use for baseline measures. Tutors commonly used resources from the internet or from other sources when tutoring learners. These instructions simulated a resource that could be found on the internet or in a book (See Appendix F).
**Activity Tote**

All necessary materials for completing either Reading Activity 1 or Reading Activity 2 were compiled into a tote. The materials in the tote were a book, *Goodnight Moon*, alphabet letter cards, both upper and lowercase, three mechanical pencils, and two ballpoint blue pens. *Goodnight Moon* was used for the study because its Lexile Measure was AD360L. This means, *Goodnight Moon* is considered an “adult directed” book and can be read even with a low level of reading, making it a great book for parents with low literacy to read to their children.

**Video Camera**

A video camera was used to record sessions for IOA scoring at a later date. The video camera was a GoPro HERO4 and it was housed in a clear plastic protector case attached to a stand enabling the camera to be placed on a table to record sessions.

**Social Acceptability Survey**

An acceptability survey was distributed to the tutors and the parent following the training to assess their acceptability with the training process (See Appendix G).

**Experimental Design**

This study used a multiple-probe design across participants (Baer & Horner, 1978; Parsons, Rollyson & Reid, 2013) to evaluate the effects of the training on three participants’ performance. The data for the fourth participant are provided, though her data are not included with the other three tutors due to her late entrance into the study. Data for each tutor were graphed; tutor and parent participant data are averaged and outlined in Tables 3 and 4.

**Dependent Variable**

The primary dependent variable was the number of steps of BST implemented correctly by the literacy tutors. For this study, the eight BST steps of Parsons, Rollyson, and Reid (2013)
were condensed into six BST steps. These steps were: (1) provide and vocally review the skill checklist with the parent, (2) trainer models the target skill, (3) trainee performs the target skill, (4) trainer scores the rehearsal of the activity, (5) trainer provides feedback on trainee’s performance, and (6) repeat steps 3, 4, and 5 until all steps of the activity are performed correctly (Parsons, Rollyson, & Reid, 2013; See Table 2).

Table 2

*Steps and Behavioral Definitions for Behavioral Skills Training*

<table>
<thead>
<tr>
<th>Step</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Provide and vocally review the skill checklist with the parent</td>
</tr>
<tr>
<td>2.</td>
<td>Trainer models the target skill</td>
</tr>
<tr>
<td>3.</td>
<td>Trainee performs the target skill</td>
</tr>
<tr>
<td>4.</td>
<td>Trainer scores the rehearsal of the skill</td>
</tr>
<tr>
<td>5.</td>
<td>Trainer provides feedback on trainee’s performance</td>
</tr>
<tr>
<td>6.</td>
<td>Repeat steps 3, 4, and 5 until trainee performs the skill correctly</td>
</tr>
</tbody>
</table>

A step was scored as correct if all components of the step were completed by the tutor. A step was scored as incorrect if the tutor did not perform the step or did not perform all components of the step, e.g., the tutor did not take data on the parent’s performance in step 4. If a step was not applicable (e.g., the parent performed the activity with 100% accuracy and did not need to repeat rehearsal) then that step was not included in the scoring of the tutor’s performance. Secondary measures were taken on the parent’s performance of Reading Activity 1. These measures were taken during pre-training and post-training probes with a research assistant playing the role of a child. No children participated in the study.
Independent Variable

The training sessions served as the independent variable in this study. In the training sessions the experimenter and the assistant researcher were present. The experimenter used the six BST steps outlined in Table 2, to train the tutors using the BST manual to in turn use the six BST steps when training the parents on a literacy activity. Each training was completed individually with the tutors, the experimenter, and an assistant researcher who served as a confederate parent. First, the experimenter vocally reviewed the skills checklist with the tutor (Step 1). In Step 1, the experimenter provided the BST manual to the tutor, provided the rationale for using BST with parents, and then vocally described each step of BST. In Step 2, the experimenter modeled the steps of BST with Reading Activity. In this step, the experimenter demonstrated the six steps of BST with the assistant researcher playing the role of a parent. The experimenter vocally reviewed the skill checklist with the assistant, modeled the target skill, had the assistant perform the skill, scored the performance, provided feedback, and repeated the steps until the assistant researcher demonstrated all steps correctly. In each training session, the assistant researcher, who was the confederate parent, made at least two errors, ensuring that the experimenter could model Step 6, repeating steps 3, 4, and 5 twice.

Once the demonstration was complete, the tutor transitioned to demonstrating how he/she would perform BST with parent confederates (Step 3). For this step, each tutor worked with the assistant researcher while the experimenter observed and recorded the tutor’s performance (Step 4), provided descriptive feedback based on the performance (Step 5); and Steps 3, 4, and 5 were repeated as necessary based on his/her performance (Step 6). The training script was used in each training session and sessions were video recorded, to be scored for treatment fidelity at a later time.
Data Collection

All data were collected manually using the corresponding data collection sheet depending on the session and a pencil. The number of correctly implemented steps of the BST package were recorded. The number of steps was then converted to a percentage of correctly implemented steps by counting the number of steps completed correctly, dividing by the total number of steps, and multiplying by 100. Additionally, the number of correctly implemented steps of Reading Activity 1 by Parent 1 was measured in baseline and maintenance probes by counting the number of steps completed correctly, dividing by the total number of steps, and multiplying by 100.

Interobserver Agreement and Treatment Fidelity

Interobserver agreement (IOA) data were collected by a psychology research assistant on 37% of sessions distributed across all phases and all participants. Data were recorded either during session or sessions were video-recorded and scored after the session. Agreement was calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100%. Agreement occurred when the research assistant’s data matched the data collected by the lead researcher or another research assistant. Total mean IOA across all sessions was 97.6 percent. Mean IOA during training probes was 100% and in all other probes was 96.6% (range, 83 to 100).

Treatment fidelity data were also collected during 75% of training sessions. The data were collected during training sessions, or sessions were video-recorded and scored later. All treatment fidelity measures were conducted by a research assistant using a task analysis checklist of each step of the training and the training script. Treatment integrity was calculated by counting the total number of steps completed and dividing the sum by the total number of steps
possible, then multiplying by 100. Treatment integrity scores across the three training sessions was 100%.

**Procedures**

**Baseline Probes**

**Parent baseline probes**

Baseline sessions were conducted before BST and all maintenance sessions were conducted after BST. The parent’s baseline and maintenance probes were conducted in a quiet room at the adult education center with the parent, a confederate child (a research assistant acting in the role of a child), and the experimenter in the room. No tutors were in the room for the parent sessions. For each session, at least one researcher was present to record the parent’s performance and the research assistant was present to be a confederate child when necessary. When IOA data were collected, a second researcher was present, or the session was recorded to be viewed and scored on a later day.

Baseline and maintenance probe sessions started by asking the parent to perform the steps in Reading Activity 1. First, the parent sat at a table next to the confederate child. Next, the experimenter gave the parent an activity tote that contained the materials for the session and said, “Please show me how you would do an interactive read aloud with your child. You can use any of the materials in this bag. Take all the time you need to prepare and let me know when you are ready to begin.” The parent was then given as much time as she wanted to look at the materials in the tote. Once the parent said she was ready to begin, the researcher started the video camera.

As the parent performed the activity with the confederate child, the experimenter observed the parent and collected data on a clipboard that held the task analysis checklist for the
reading activity. The researcher recorded which steps were performed correctly, which steps were not performed, and which steps were performed incorrectly. Finally, once the parent indicated that she was done, the parent’s baseline probe session ended, and the video camera was turned off.

**Tutor baseline probe sessions**

All baseline sessions were conducted before BST and all maintenance sessions were conducted after BST. The tutor baseline and maintenance probe sessions were conducted in a quiet room at the adult education center with a parent or confederate parent (a research assistant acting in the role of a child), and the experimenter in the room. For each session, the experimenter was present to record the tutor’s performance and an assistant researcher was present to be a confederate parent or child when necessary. When IOA data were collected, a second assistant researcher was present, or the recording of the session was viewed and scored on a later day.

The tutor sat at the table next to the parent or confederate parent. The experimenter then provided the tutor with the baseline description of Reading Activity 1 or Reading Activity 2, the activity tote, and said, “Here is a description of [an interactive read aloud activity or an alphabetic knowledge activity] and some materials. Please show me how you would typically train a parent to do an interactive read aloud with their child. You can use any of the materials in this bag. Take all the time you need to prepare. Let me know if you have any questions and when you are ready to begin.” Then the tutor was given time to read the description and go through the materials.

Once the tutor indicated that he/she was ready to begin, the experimenter turned on the camera. As the tutor trained the parent/confederate parent, the experimenter sat to the left of the
tutor in a position where she was able to observe what the tutor was doing. The lead researcher had a clipboard with the BST fidelity checklist (see Appendix C). The lead researcher recorded which steps were performed correctly and which steps were not performed or were performed incorrectly. Once the tutor indicated that he/she was done, the session was terminated, and the video camera was turned off. This set of procedures was repeated for all baseline and maintenance probes throughout the study.

**Training**

Appendix D and Table 2 contain the steps implemented during training sessions with the tutor. The initial training session for each tutor was comprised of instructions, modeling, rehearsal, and feedback. The session was conducted in a quiet room at the adult education center. The experimenter, a confederate parent, and one tutor were in the room. Each training session was approximately 62 minutes (range, 40-82 minutes).

To begin the training session, the experimenter gave a tutor the BST training manual (see Appendix B) and the activity tote for Reading Activity 1 (interactive read aloud). Then, the experimenter sat next to the tutor, provided them with the list of BST steps, and read a copy of the BST script aloud (*instructions*). The experimenter then demonstrated the steps to complete BST using Reading Activity 1 (*modeling*). Then, the tutor practiced the steps in the BST procedure by performing Reading Activity 1 with the confederate parent (*rehearsal*). The experimenter gave the tutor descriptive praise for steps that were completed correctly (e.g., “nice job remembering to model the skill for the parent”) and corrective feedback for steps performed incorrectly (e.g., “next time be sure to take data on the parent’s performance”) (*feedback*). The rehearsal and feedback steps were repeated until the tutor met the mastery criterion for Reading Activity 1: Completing one rehearsal during which they accurately performed 100% of the BST
steps. Once the mastery criterion was met, the training session ended, and the tutor moved on to the post-training phase.

**Post-Training and Feedback**

Post-training probe sessions occurred after the training sessions (typically on a different day). Post-training sessions followed a similar format as pre-training sessions except that opportunities for rehearsal and feedback were provided. All post-training sessions were conducted with Reading Activity 1 and then Reading Activity 2. Post-training sessions began with the experimenter giving the tutor the BST manual (see Appendix B), the activity tote, and saying, “Here is a manual on how to train a parent to perform [an interactive read aloud or alphabet knowledge] activity. Please show me how you would use the manual to teach a parent to do the reading activity with their child. You can use any of the materials in this bag. Take all the time you need to prepare. Let me know if you have any questions and when you are ready to begin.”

As in the baseline probe, the tutor was given time to read the description and look at the materials. Once the tutor indicated that he/she was ready to begin, the experimenter turned on the video camera. As the tutor trained the parent/confederate parent, the experimenter sat near the tutor to observe what he/she was doing. The lead researcher had a clipboard with the BST fidelity checklist (see Appendix C). The lead researcher recorded which steps were performed correctly and which steps were not performed or were performed incorrectly. When the tutor indicated that he/she was done, the session was terminated, and the video camera was turned off.

Following demonstration of the Reading Activity 1, performance on Reading Activity 2 (which was untrained) was also probed. The same instructions and procedures were used, with the exception of replacing “Interactive Read Aloud” with “Alphabet Knowledge.” There were
no instructions or modeling for Reading Activity 2. The tutor rehearsed the activity and received feedback from the experimenter on steps performed correctly or incorrectly (e.g., descriptive praise and corrective feedback). Rehearsal and feedback continued until the tutor performed all of the steps to mastery criterion: One rehearsal with 100% accuracy.

**Maintenance Probes**

Maintenance probe sessions for Reading Activity 1 and 2 followed a similar format as the pre-training probe sessions; however, prior to the training session, the parent participant was asked to perform Reading Activity 1 for another baseline measure. These maintenance sessions were conducted in the same manner as the probe measure in baseline. Due to limited availability of parents, only Tutor 1 was able to work with a parent, the other Tutors worked with a researcher confederate parent.

All Reading Activity 2 probe sessions were conducted with a confederate parent researcher. Secondary measures were not conducted with parent participants for these probes. Only one probe session for Reading Activity 2 was conducted with each participant. All maintenance sessions followed the same format as post-training probe sessions, except feedback was not provided to the tutors following their demonstration. Probe measures were conducted at two-week and four-week intervals following the post-training probes for all tutors other than Tutor 1, whose probe measures were conducted at four-week and six-week intervals.

**Tutor maintenance probes**

Maintenance probes were conducted at two- and four-week intervals for Tutors 2 and 3. Maintenance probes were conducted at four- and six-week intervals for Tutor 1 and one-, two-, and four-week intervals for Tutor 4. Maintenance intervals varied based on tutor availability.
Maintenance probe measures for the tutors were conducted in the same manner as post-training probe sessions, but without the feedback component. The experimenter provided each tutor with the BST manual, the activity tote, and said, “Here is a manual on how to train a parent to perform an [interactive read aloud or alphabet knowledge] probe. Please show me how you would use the manual to teach a parent to do the reading activity with their child. You can use any of the materials in this bag. Take all the time you need to prepare. Let me know if you have any questions and when you are ready to begin.”

As in baseline, the tutor was given time to read the description and go through the materials. Once the tutor indicated that he/she was ready to begin, the researcher turned on the camera. As the tutor trained the parent/confederate parent, the experimenter sat to the left of the tutor in a position where she was able to observe what the tutor was doing. The experimenter had a clipboard with the BST fidelity checklist (see Appendix C). The experimenter recorded which steps were performed correctly and which steps were not performed or were performed incorrectly. When the tutor indicated that he/she was done, the session was terminated, and the video camera was turned off. This set of procedures was repeated for all maintenance probes throughout the study.

**Parent post-training probes**

Once the tutor completed all sessions, they were observed tutoring the parent again. Specifically, the parent was asked again to perform Reading Activity 1 for a post-training measure. The post-training probe followed the same format as baseline post-training probe measures. Probes with the parent were only conducted for Tutor 1 because of parent availability.
RESULTS

Tutor Performance

Tutor 1

Figure 1 displays the percentage of BST steps completed during baseline, pre-training, training, post-training feedback, and maintenance conditions. During the baseline probe, Tutor 1 accurately completed 17% of steps when teaching a parent to implement an interactive read aloud and accurately completed 17% of steps when teaching a confederate parent to implement an alphabetic knowledge task. During post-training and feedback, Tutor 1 accurately completed 67% of steps when teaching a parent to implement an interactive read aloud in her first session attempt and 100% of steps in her second attempt. With the alphabet knowledge task, she also completed 67% of steps correctly on her first attempt, and 100% of steps correctly on her second attempt. During maintenance, Tutor 1 accurately completed 100% of steps at four- and six-week follow-up probes on an interactive read aloud. She also performed 100% of steps correctly on the alphabet knowledge task during a six-week follow-up probe.

Tutor 2

Figure 1 displays the percentage of BST steps completed during baseline, pre-training, training, post-training feedback, and maintenance conditions. During baseline, Tutor 2 accurately completed on average 9% of steps (range 0-17) when teaching a confederate parent to implement an interactive read aloud and accurately completed 17% of steps when teaching a confederate parent to implement an alphabetic knowledge task. During post-training and feedback, Tutor 2 accurately completed 83% of steps when teaching an interactive read aloud in his first session attempt and 100% of steps in his second attempt.
With the alphabet knowledge task, he completed 100% of steps correctly on his first attempt. During maintenance, Tutor 2 accurately completed 83% of steps correctly on a two-week follow-up probe and 83% of steps on a four-week follow-up probe on an interactive read aloud. He also completed 67% of steps correctly on a four-week follow-up probe when training the alphabet knowledge activity.

Tutor 3

Figure 1 displays the percentage of BST steps completed during baseline, pre-training, training, post-training feedback, and maintenance conditions. During baseline, Tutor 3 accurately completed on average 6% of steps (range 0-17) when teaching a confederate parent to implement an interactive read aloud and accurately completed 0% of steps when teaching a confederate parent to implement an alphabetic knowledge task. During post-training and feedback, Tutor 3 accurately completed 17% of steps when teaching an interactive read aloud in his first session attempt and 100% of steps in his second attempt. With the alphabet knowledge task, he completed 100% of steps correctly on his first attempt. During maintenance, Tutor 3 accurately completed 100% of steps on a two-week follow-up probe and 100% of steps on a four-week follow-up probe on an interactive read aloud. He also completed 100% of steps correctly on a two-week follow-up probe when training the alphabet knowledge activity.

Tutor 4

Figure 2 displays the percentage of BST steps completed during baseline, pre-training, training, post-training feedback, and maintenance conditions. During baseline, Tutor 4 accurately completed 0% of steps when teaching a confederate parent to implement an interactive read aloud and accurately completed 0% of steps when teaching a confederate parent to implement an alphabetic knowledge task. During post-training and feedback, she accurately
completed 100% of steps when teaching an interactive read aloud in her first session. With the alphabet knowledge task, she completed 83% of steps correctly on his first attempt and 100% of steps correctly in her second attempt. During maintenance, Tutor 4 accurately completed 100% of steps on a one-week follow-up probe, 100% of steps on a two-week follow-up probe, and 100% of steps on a four-week follow-up probe on teaching an interactive read aloud. She also completed 100% of steps correctly on a two-week follow-up probe when training the alphabet knowledge activity.

Table 3

*Percentage of BST Steps Performed Correctly in the Last Baseline and Last Maintenance Probes*

<table>
<thead>
<tr>
<th>Tutor</th>
<th>Trained Activity Interactive Read Aloud Pre-BST</th>
<th>Trained Activity Interactive Read Aloud Post-BST</th>
<th>Sessions to Criterion in Post-Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor 1</td>
<td>0</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Tutor 2</td>
<td>0</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>Tutor 3</td>
<td>0</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Tutor 4</td>
<td>0</td>
<td>100</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tutor</th>
<th>Untrained Activity Alphabet Knowledge Pre-BST</th>
<th>Untrained Activity Alphabet Knowledge Post-BST</th>
<th>Sessions to Criterion in Post-Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor 1</td>
<td>17</td>
<td>67</td>
<td>2</td>
</tr>
<tr>
<td>Tutor 2</td>
<td>17</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Tutor 3</td>
<td>0</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Tutor 4</td>
<td>0</td>
<td>83</td>
<td>2</td>
</tr>
</tbody>
</table>
Parent Performance

Parent

Figure 3 displays the percentage correct of steps of the Interactive Read Aloud activity. During baseline, the Parent accurately completed 21% of steps when performing the Interactive Read Aloud activity with a confederate child. During BST with Tutor 1, the Parent’s median percentage of accurate steps was 93%. Following the training, the Parent performed 93% of steps correct on the Interactive Read Aloud probe with a confederate child.

Table 4

*Percentage of Steps Performed Correctly During Baseline and Maintenance Probes*

<table>
<thead>
<tr>
<th>Parent Participant</th>
<th>Pre-BST Reading Activity 1 Pre-Training</th>
<th>Post-BST Reading Activity 1 Post-Training</th>
<th>Pre-BST Reading Activity 1 Pre-Training</th>
<th>Post-BST Reading Activity 1 Post-Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>14</td>
<td>21</td>
<td>14</td>
<td>93</td>
</tr>
<tr>
<td>Total Change</td>
<td>7</td>
<td>79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Training Data

Figure 1 displays the percentage of BST steps completed with Tutors 1-3 during training with the Interactive Read Aloud activity. During training, Tutor 1 required three sessions to criterion with a median percentage correct of 33% (range, 33-100%). It also took Tutor 3 three sessions to criterion with a median percentage correct of 83% (range, 83-100%). Tutor 3 took two sessions to criterion with a median percentage correct of 58.5% (range, 17-100). Figure 2 displays the percentage of BST steps completed with Tutor 4 during training with the Interactive Read Aloud activity. Adriana required two sessions to criterion with a median percentage correct of 91.5% (range, 83-100%).
Social Acceptability

The participants of the study were asked to complete an anonymous social acceptability survey to determine their position on the intervention’s acceptability (see Appendix G). The first four questions used a Likert scale from one to five. The Likert questions offered a spectrum of responses where the “1” represented “poor” and the “5” represented “excellent.” The second and third questions related specifically to BST and its four components, i.e., instructions, modeling, rehearsal, and feedback. Tutors answered these questions by circling the component that corresponded to their answer to the question. The final question was a free-response question where tutors could provide additional comments or feedback.

When asked how much the tutors liked going over the instruction component in BST, scores averaged 4.5 out of 5 (range, 4/very good, to 5/excellent). When asked how much tutors liked seeing the model, scores averaged 4.5 (range, 4/very good, to 5/excellent). When asked how much tutors liked practicing the skill (rehearsal), scores averaged 3.5 (range, 2/fair, to 5/excellent). When asked how much tutors liked getting feedback, scores averaged 4.0 (range 3/good, to 5/excellent).

When asked which part of the training the tutor found “most effective” in learning a new skill, responses were evenly split between the “rehearsal” component and the “feedback” component. When asked which part of the training the tutor “liked” the most, responses were diverse. Each tutor selected a different component, i.e., one tutor selected “instructions,” another “modeling,” another “rehearsal,” and another “feedback.” When asked for additional comments or feedback for the trainers, one tutor wrote “thank-you” and another tutor wrote “none.”

The same survey was provided to the parent. For the first question, when asked how much the parent liked each component of BST (instructions, modeling, rehearsal, and feedback),
the parent responded 5.0 out of 5 (excellent) for each component. When asked which part she found to be the “most effective,” the parent responded “modeling.” When asked which part she “liked” the most, the parent responded “rehearsal.” No comments were recorded for the final question.
Figure 1: Percentage of steps of BST completed correctly for each participant for each Reading Activity across all phases. The “w” signifies weeks passed since last Post-Training probe.
Figure 2: Percentage of steps of BST completed correctly for Tutor 4 for each Reading Activity across all phases. The “w” signifies weeks passed since last Post-Training probe.
Figure 3: Percentage of steps of Reading Activity 1 completed correctly by the Parent participant across all probes both before BST and after BST with Tutor 1 as the trainer.
DISCUSSION

Overview

The purpose of the current experiment was to evaluate the effectiveness of a BST package on the tutoring behaviors of adult educators who work with parents who have low literacy. Data were collected on tutors’ correct implementation of early childhood reading activities (interactive read aloud and alphabet knowledge activities) during baseline probes, post training and feedback, and maintenance conditions. Percentage of correctly implemented steps during training sessions were also recorded. Results demonstrated that the BST package resulted in tutors correctly implementing an increased number of the steps of BST. Also, parent performance improved on the implementation of a literacy activity following BST. Major findings, limitations, and future research are discussed below.

Major Findings

Behavioral Skills Training compared to baseline. The behavioral skills training protocol was effective in teaching four adult literacy educators to accurately complete the steps of BST when training an adult to perform a literacy activity. When compared to baseline, accurate completion of the BST steps when performing Reading Activity 1, the activity on which they received training, increased on average from 4.61% to 95.75% of steps completed correctly. The smallest difference was with Tutor 2, who only increased from 5.67% to 83% of the steps completed correctly. The largest difference was Tutor 4, who increased from 0% in baseline to 100% of the steps completed correctly in both maintenance probes. It should also be noted that one post-training session was not included in the data for Tutor 2. Though originally agreeing to start the session, the tutor reported that he was not feeling well and asked to end the session early.
For the parent, accurate performance of the steps of Reading Activity 1 also increased from 21% of steps to 93%. In baseline prior to receiving the training from Tutor 1, the parent performed 14% of the steps correctly and following training only performed 21% of the steps correctly. Prior to training in maintenance, the parent again only performed 14% of the steps correctly. During training the parent required 3 rehearsal sessions to meet mastery criterion with a median of 93% correct steps completed, missing only one step.

For Reading Activity 2, when compared to baseline, accurate completion of the BST steps increased on average from 8.5% to 91.75% for Tutors 1, 2, 3, and 4. This was the activity for which the tutors did not receive the full training, only feedback was provided following rehearsals that did not meet mastery criterion. The smallest difference was for Tutor 2, who only increased from an average performance of 17% to 67% of steps completed correctly. The largest difference was with Tutors 3 and 4, who both increased in accurate performance of steps from 0% in baseline to 100% in both maintenance probes.

*Behavioral Skills Training Session.* The results of this experiment also showed an increase in the number of BST steps completed correctly on training day, over a short period of time from baseline to the first post-training probes. On average, training for all four Tutors lasted 62.25 minutes. Improved performance from baseline to post-training probes averaged 0% to 79.25% of steps completed correctly before providing feedback. On average, Tutors required three rehearsal sessions to meet mastery criterion.

**Anecdotal Findings**

A few anecdotal observations were made throughout the study. Tutors took more time to review the instructions and materials after BST than they did before BST. For example, before BST, tutors typically read through the handouts once, grabbed the corresponding materials, and
were ready to start the session. After BST, tutors reviewed the BST manual more thoroughly (e.g., took more time reading it, carefully reviewed the pages, and then pointed to certain areas) and made sure they had writing utensils and the correct materials before starting the sessions. For example, after BST Tutor 3 actually practiced what he was going to do in the training before the session with the confederate parent.

The interactive read aloud activity included asking comprehension questions and highlighting vocabulary words while reading the story. In the rehearsal phase of training, the tutors typically demonstrated this step of the skill using the same example comprehension questions and vocabulary words the lead researcher first modeled. However, in maintenance probes, tutors demonstrated novel examples of comprehension questions and vocabulary words while modeling the activity with both the parent participant and the confederate parents. During one of his maintenance probes, Tutor 3 vocally rehearsed novel comprehension questions prior to conducting the session.

The most common BST step tutors did not perform during training sessions and post-training probes was Step 4—the trainer scores the rehearsal of the activity. When provided with feedback for missing this step, a tutor replied that he did not have to take data because he could keep track of the parent’s performance without writing it down. The reason Step 4 may have not been performed in these probes may have been because a tutor did not “want” to perform the step as opposed to “forgetting” or “missing” the step.

The entire study took place over a 11-week period. Baseline probes were conducted over a two- to four-week time frame. BST sessions were conducted on a single day. Post-training probes were conducted over a two-week period if the tutor did not meet the mastery-
criterion in their first probe. Maintenance probes were conducted between one- and six-week intervals.

**Limitations**

One limitation was the use of research assistants as confederate parents throughout the study. The confederate parents may have had a reactivity effect on tutor performance. Tutors may have conducted their training probes differently with an actual parent than with a researcher acting as a parent. Additionally, the same two graduate students were research assistants throughout the study which may have affected tutor performance. Future studies could address this limitation by using a more diverse group of confederate parents—or parents themselves.

Another limitation was the inconsistency of maintenance probe sessions. Tutor 1 had four- and six-week maintenance measures instead of two- and four-week measures. Despite the extended duration between measures, her performance was consistent. Tutor 4 had a one-week probe measure because she originally was going to be out of town for the two-week measure; however, her schedule changed which made it possible for her to have a two- and four-week measure. The extra probe session may be a confound variable that contributed to her high-performance during maintenance probe sessions.

A third limitation was the experimental design and small amount of observational data acquired. A multiple-probe design was selected because continuous measurement was not feasible due to the site and experimenter’s schedules. A multiple-baseline design would have produced more sessions and data which may have yielded additional findings in tutor and parent performance.

A fourth limitation was the manner in which baseline sessions were conducted. In this study, the impact of just giving instructions about BST was not measured. Future research can
evaluate whether simply providing the tutors with the BST steps would have any effect on their performance of the steps, compared to the entire training.

**Barriers**

One major barrier was recruitment at the adult education sites. The coordinators of the program were eager to partner with the university to conduct research at their sites and were looking for support when it came to training volunteer tutors to work with parents as first literacy teachers to their children. Despite the enthusiasm expressed at the director level of the organization, at the site level, site coordinators were very wary when it came to allowing researchers access to recruiting both tutors and parents. Due to these challenges, all tutors were recruited from the same location—the headquarters of the program—rather than recruiting tutors from different sites across the community. This observed uneasiness with outsiders may be a factor as to why little research has been done with these populations.

A second barrier was tutor availability throughout the study. Three of the four tutors took public transportation to the program site making their schedules less flexible to work around. Additionally, during the study one tutor transitioned to a new job and was unable to come to the site at the regular session time. The site itself was closed at the end of the summer during the study. All of these factors contributed to adjustments made in the scheduling the sessions and account for why maintenance probes were not conducted at consistent intervals across all tutors.

There were similar challenges with the parent participant who was provided free transportation to and from the site through a special community organization. Her schedule did not allow flexibility due to the strict stipulations of the transportation group. Recruitment of parent participants was limited overall due to the constraints of the tutors’ schedules and the site at which the study was conducted. The researchers were planning on recruiting three parent
participants for the study, but only one parent was available in the timeframe the tutors were at the site.

**Application of BST Research to Current Findings**

The current study is consistent with the literature on BST which has shown the effectiveness of combining instructions, modeling, rehearsal, and feedback in skill acquisition (Kornacki, Ringdahl, Sjostrom, & Nuernberger, 2013; Parsons et al., 2012; Parsons et al., 2013; Ward-Horner & Sturmey, 2012). In this study, all four components of BST were combined during the training session, and the rehearsal and feedback components continued until the tutors reached the mastery criterion. Despite meeting the mastery criterion during training, in the post-training phase, additional feedback was required for each tutor to meet mastery-criterion with at least one skill. In a component analysis conducted by Ward-Horner and Sturmey (2012), researchers identified feedback, and to a lesser extent modeling, to be the most effective components of BST. This may explain why, after receiving feedback during the post-training phase, tutors reached mastery-criterion in their very next session.

In the current study, tutors only received training on teaching one new skill (Reading Activity 1) and their performance in training a parent on the second skill (Reading Activity 2) was probed. Performance of the steps of BST when teaching the second skill transferred from the training with the first skill without explicit training, though feedback was provided for tutors 1 and 3. Previous research has also shown that BST can produce improved performance on not only acquisition of one new skill, but also the transfer of performance to an untrained skill (Fetherstone & Sturmey, 2014).

Significant improvements in performance following a relatively short BST session is also consistent with BST literature (Suberman & Cividini-Motta 2019). In a replication study,
researchers conducted two training sessions with each group of participants, both of which lasted no more than one hour (Parsons et al., 2013). Also, all 10 participants improved BST performance following training. Erath et al., (2019) conducted a similar study where researchers evaluated the effects of a single BST training session with 25 participants. Their training session only lasted 52 minutes and 20 of the 25 participants met mastery-criterion, half immediately following training and the second half after receiving brief feedback.

Practical Implications and Future Research

The procedure outlined in this study may offer a practical approach for training adult education tutors. The education center’s training is 13 hours total (1 hour of orientation and 12 hours of training on the different curricula) and conducted with groups of 10 tutors. Instead of focusing on training each literacy curriculum separately, the center could use BST to train the tutors on one curriculum and then provide feedback to the tutors for whom the training may not have transferred to other curricula. Additionally, even though this study involved training each tutor separately, research has consistently shown BST to be effective when used in group trainings as well. Instead of having a researcher serve as a parent during training, the tutors could pair up and take turns acting as the parent. Future research could explore the efficacy of this procedure.

Through the use of BST, tutors may also be trainers to future volunteer tutors. As mentioned previously, many adult education centers are mostly volunteer run and have limited resources. In lieu of paying employees or hiring consultants to conduct trainings, current tutors could use BST to train new tutors, in the same way they used BST to train parents. This would constitute a pyramidal training approach which has shown to be effective in the BST literature, and would offer additional flexibility to adult education centers in staff trainings.
Future studies should also address the limitations outlined in this study. Another study conducted with a more diverse population, tutors across different literacy sites or working for different adult education programs, may yield different results. Moreover, including more parents in probes could result in different findings and would be more socially valid. This may be more easily accomplished if sessions could be conducted in the parents’ homes. Future research may also investigate training other types of service providers who work closely with families.

CONCLUSION

Overall, the present study shows that BST can be used to train volunteer, adult-education tutors to use BST when working with parents with low literacy. Prior to the training, tutors did not perform more than one step of BST correctly. Following the training, all tutors increased the steps of BST they performed and were able to transfer performance to an untrained skill.

This study also was effective in teaching a parent with low literacy to conduct a reading activity with her child that could potentially improve her child’s literacy. The parent’s performance before and after receiving training from the tutor increased only by one step. After the tutor received the BST package and feedback, the parent’s performance increased significantly.

Additionally, the study extends existing BST research through implementation with a novel population. It adds to existing adult literacy research which lacks training practices and procedures used with this population. Moreover, the results suggest the BST package was effective in teaching volunteer tutors to perform BST in a relatively short period of time. The BST procedure offers a practical approach to systematically training adult education tutors that could possibly be implemented on a large scale in many adult education programs.
REFERENCES


Houvouras, A. J. and Harvey, M. T. (2014), Establishing fire safety skills using behavioral skills training. *Journal of Applied Behavior Analysis, 47*(2) 420-424. doi:10.1002/jaba.113


Appendix A

HSIRB Approval
Date: July 23, 2019

To: Denise Ross, Principal Investigator  
   Mya Hernandez, Student Investigator for dissertation  
   Katherine Mahaffy, Student Investigator for dissertation  
   Student Investigators: Ariana McClellan, Brandi Fontenot, Michael Jones,  
   Margaret Uwayo, Garrett Warrillow

From: Amy Naugle, Ph.D., Chair

Re: IRB Project Number 15-05-04

This letter will serve as confirmation that the changes to your research project titled “Establishing the Literacy Skills of Students with Reading Delays” requested in your memo received July 17, 2019 (to add video and/or audio recording; to expand dissemination to include use of data for Mya Hernandez’s and Katherine Mahaffy’s dissertations; to revise consent documents to reflect these changes) have been approved by the Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the IRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination:  

June 14, 2020
Appendix B

BST Manuals
Training an Interactive Read Aloud Activity

Rationale + Steps:

“Interactive read aloud activities are great ways to work on listening, speaking, and reading behaviors with your child. This activity is commonly done in schools. You can prepare your child by practicing at home.”

“Let’s go over the steps together…”

<table>
<thead>
<tr>
<th>Before Reading:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “The title of the book is _____”</td>
<td></td>
</tr>
<tr>
<td>2. “The author’s name is ______ the illustrator’s name is ______”</td>
<td></td>
</tr>
<tr>
<td>3. “Look there is a _____ on the cover. What do you think the book will be about?”</td>
<td></td>
</tr>
<tr>
<td>4. “Good idea, let’s see if your guess is correct!”</td>
<td></td>
</tr>
<tr>
<td>During Reading:</td>
<td></td>
</tr>
<tr>
<td>5. Read with expression</td>
<td></td>
</tr>
<tr>
<td>6. Ask 3 comprehension questions:</td>
<td></td>
</tr>
<tr>
<td>a. “What do you think will happen next?”</td>
<td></td>
</tr>
<tr>
<td>b. “How does the character feel?”</td>
<td></td>
</tr>
<tr>
<td>c. “What would you do?”</td>
<td></td>
</tr>
<tr>
<td>7. Highlight 3 vocabulary words:</td>
<td></td>
</tr>
<tr>
<td>a. “What do you think _____ means?”</td>
<td></td>
</tr>
<tr>
<td>b. “______ means _____”</td>
<td></td>
</tr>
<tr>
<td>After Reading:</td>
<td></td>
</tr>
<tr>
<td>8. “Did you enjoy the book?”</td>
<td></td>
</tr>
<tr>
<td>9. “What part was your favorite?”</td>
<td></td>
</tr>
<tr>
<td>10. “My favorite part was _____”</td>
<td></td>
</tr>
</tbody>
</table>

Instruction:
Model: “I will show you how to do an Interactive Read Aloud with your child”
Rehearsal: “Now you can practice how you will do an Interactive Read Aloud with your child”
(record which steps the parent completed correctly and which ones were incorrect or not completed)

Feedback: “You did a great job. You did ____., ____., and ____ correctly. Nice work.” “Next time, make sure to include ____ and ____.”

Repeat Rehearsal and Feedback until parent is performing all steps correctly

Final: “You did an excellent job. Thank you for working on this activity today. Next session, you can let me know how it went on your own!”
# Parent Data Sheet

<table>
<thead>
<tr>
<th>Before Reading</th>
<th>Trials (+ / -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Title</td>
<td>1  2  3  4  5</td>
</tr>
<tr>
<td>• Read the Author’s and Illustrator’s names</td>
<td></td>
</tr>
<tr>
<td>• Cover + Predictive Statement</td>
<td></td>
</tr>
<tr>
<td>• Hook Statement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>During Reading</th>
<th>1  2  3  4  5</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Expression</td>
<td></td>
</tr>
<tr>
<td>• Comprehension Question 1</td>
<td></td>
</tr>
<tr>
<td>• Comprehension Question 2</td>
<td></td>
</tr>
<tr>
<td>• Comprehension Question 3</td>
<td></td>
</tr>
<tr>
<td>• Vocabulary Word 1</td>
<td></td>
</tr>
<tr>
<td>• Vocabulary Word 2</td>
<td></td>
</tr>
<tr>
<td>• Vocabulary Word 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>After Reading</th>
<th>1  2  3  4  5</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Like/Dislike Statement</td>
<td></td>
</tr>
<tr>
<td>• Favorite part statement</td>
<td></td>
</tr>
<tr>
<td>• Told Favorite Part</td>
<td></td>
</tr>
</tbody>
</table>
Interactive Read Aloud

Parent Handout

Interactive read aloud activities are great ways to work on listening, speaking, and reading behaviors with your child. This activity is commonly done in schools. You can prepare your child by practicing at home.

Steps for an Interactive Read Aloud

Before Reading:

1. “The title of the book is _____”
2. “The author’s name is ______ the illustrator’s name is ______”
3. “Look there is a _____ on the cover. What do you think the book will be about?”
4. “Good idea, let’s see if your guess is correct!”

During Reading:

5. Read with expression
6. Ask 3 comprehension questions:
   a. “What do you think will happen next?”
   b. “How does the character feel?”
   c. “What would you do?”
7. Highlight 3 vocabulary words:
   a. “What do you think _____ means?”
   b. “_____ means _____”

After Reading:

8. “Did you enjoy the book?”
9. “What part was your favorite?”
10. “My favorite part was _____”
Training an Alphabet Knowledge Activity

Rationale + Steps:
“Alphabet knowledge activities are great ways to support the development of letter-sound knowledge skills with your child. This activity is commonly done in schools. You can prepare your child be practicing at home.”

“Let’s go over the steps together…”

<table>
<thead>
<tr>
<th>First Letter Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “This is the letter ____”</td>
</tr>
<tr>
<td>2. “This is the uppercase letter”</td>
</tr>
<tr>
<td>3. “This is the lowercase letter”</td>
</tr>
<tr>
<td>4. “What letter is this?”</td>
</tr>
<tr>
<td>5. “The letter ____ represents the sound ____”</td>
</tr>
<tr>
<td>6. “Let’s practice together”</td>
</tr>
<tr>
<td>7. “Make the ____ sound with me. ____, ____, ____”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Letter Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. “This is the letter ____”</td>
</tr>
<tr>
<td>9. “This is the uppercase letter”</td>
</tr>
<tr>
<td>10. “This is the lowercase letter”</td>
</tr>
<tr>
<td>11. “What letter is this?”</td>
</tr>
<tr>
<td>12. “The letter ____ represents the sound ____”</td>
</tr>
<tr>
<td>13. “Let’s practice together”</td>
</tr>
<tr>
<td>14. “Make the ____ sound with me. ____, ____, ____”</td>
</tr>
</tbody>
</table>

Instruction:
Model: “I will show you how to do an Alphabet Knowledge Activity with your child”

Rehearsal: “Now you can practice how you will do an Alphabet Knowledge Activity with your child” (record which steps the parent completed correctly and which ones were incorrect or not completed)

Feedback: “You did a great job. You did ____, ____ , and ____ correctly. Nice work.” “Next time, make sure to include ____ and ____.” Repeat Rehearsal and Feedback until parent is performing all steps correctly

Final: “You did an excellent job. Thank you for working on this activity today. Next session, you can let me know how it went on your own!”
# Parent Data Sheet

<table>
<thead>
<tr>
<th>First Letter Card</th>
<th>Trials (+ / -)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>• Label letter _____</td>
<td></td>
</tr>
<tr>
<td>• Show uppercase letter</td>
<td></td>
</tr>
<tr>
<td>• Show lowercase letter</td>
<td></td>
</tr>
<tr>
<td>• Ask “what letter is this”</td>
<td></td>
</tr>
<tr>
<td>• State “the letter _____ represents the sound _____”</td>
<td></td>
</tr>
<tr>
<td>• State “let’s practice together”</td>
<td></td>
</tr>
<tr>
<td>• State “make the ___ sound with me ___, ___, ___”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Letter Card</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Label letter _____</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Show uppercase letter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Show lowercase letter</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>• Ask “what letter is this”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• State “the letter _____ represents the sound _____”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• State “let’s practice together”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• State “make the ___ sound with me ___, ___, ___”</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Alphabet Knowledge Activity
Parent Handout

Alphabet knowledge activities are great ways to support the development of letter-sound knowledge skills with your child. This activity is commonly done in schools. You can prepare your child be practicing at home.

Steps for an Alphabet Knowledge Activity

First Letter Card
1. “This is the letter _____”
2. “This is the uppercase letter”
3. “This is the lowercase letter”
4. “What letter is this?”
5. “The letter _____ represents the sound _____”
6. “Let’s practice together”
7. “Make the ____ sound with me. _____, _____, ____”

Second Letter Card
8. “This is the letter _____”
9. “This is the uppercase letter”
10. “This is the lowercase letter”
11. “What letter is this?”
12. “The letter _____ represents the sound _____”
13. “Let’s practice together”
14. “Make the ____ sound with me. _____, _____, ____”
Appendix C

BST Fidelity Checklist
### BST Fidelity Checklist

<table>
<thead>
<tr>
<th>Instructions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did the trainer provide and vocally review the skill checklist?</td>
<td>+ / -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modeling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Did the trainer demonstrate all steps of the skill of concern?</td>
<td>+ / -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rehearsal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Did the trainee demonstrate the skill of concern?</td>
<td>+ / -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Feedback</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Did the trainer score rehearsal of the activity?</td>
<td>+ / -</td>
</tr>
<tr>
<td>5. Did the trainee perform the skill with 100% accuracy?</td>
<td>+ / -</td>
</tr>
<tr>
<td>• If “-” go to Step 7</td>
<td></td>
</tr>
<tr>
<td>• If “+” go to Step 8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Repeat</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Did the trainer continue Rehearsal AND Feedback until the trainee performed the skill with 100% accuracy?</td>
<td>+ / - / N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calculate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Tally total “+” AND “N/A”</td>
<td>_____/ 6</td>
</tr>
<tr>
<td></td>
<td>_____%</td>
</tr>
</tbody>
</table>
Appendix D

BST Training Script
BST Training Script Outline

**Rationale**

**Introduce BST** -- BST stands for behavioral skills training. It is a training model that has shown to be effective in training skills to both professionals and parents. Being skilled in performing an activity does not always translate to effectively training someone else to perform the same skill. Therefore, it is important to be trained on how best to train someone else. This is especially true for the parents you work with who may not have background knowledge on how to be first literacy teachers to their children and who may struggle with reading themselves.

Questions?

**BST Steps + Summary**

The BST steps are: (1) provide and vocally review the skill checklist with the parent, (2) trainer models the target skill, (3) trainee performs the target skill, (4) trainer scores the rehearsal of the activity, (5) trainer provides feedback on trainee’s performance, and (6) repeat steps 3, 4, and 5 until all steps of the activity are performed correctly.

Questions?

**Demonstrate**

Model performing the skill with RA as parent. RA makes mistake on 2 separate demonstrations to model rehearsal step.

Questions?

**Trainee Practice/Scoring**

Trainee practices the skill with the experimenter as the parent. Experimenter scores rehearsal.

**Feedback**

Provide descriptive feedback on the trainee’s performance with reference to data collected. Repeat Practice, Scoring, and Feedback until all steps are correct.
Appendix E

Task Analysis Checklists
Steps and Observable Behaviors for an Alphabet Knowledge Activity

<table>
<thead>
<tr>
<th>Step</th>
<th>Observable Behavior</th>
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</tbody>
</table>

**First Letter Card**

1. “This is the letter ____”
2. “This is the uppercase letter”
3. “This is the lowercase letter”
4. “What letter is this?”
5. “The letter ____ represents the sound ____”
6. “Let’s practice together”
7. “Make the ____ sound with me. _____, _____, _____”

**Second Letter Card**

8. “This is the letter ____”
9. “This is the uppercase letter”
10. “This is the lowercase letter”
11. “What letter is this?”
12. “The letter ____ represents the sound ____”
13. “Let’s practice together”
14. “Make the ____ sound with me. _____, _____, _____”
Steps and Observable Behaviors for an Interactive Read Aloud

<table>
<thead>
<tr>
<th>Step</th>
<th>Observable Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before Reading:
1. “The title of the book is _____”
2. “The author’s name is _____ the illustrator’s name is _____”
3. “Look there is a _____ on the cover. What do you think the book will be about?”
4. “Good idea, let’s see if your guess is correct!”

During Reading:
5. Read with expression
6. Ask 3 comprehension questions:
   a. “What do you think will happen next?”
   b. “How does the character feel?”
   c. “What would you do?”
7. Highlight 3 vocabulary words:
   a. “What do you think _____ means?”
   b. “_____ means _____”

After Reading:
8. “Did you enjoy the book?”
9. “What part was your favorite?”
10. “My favorite part was _____”
Appendix F

Baseline Reading Activity Descriptions
Family Literacy, Part 7

Parent’s Guide to an Alphabet Knowledge Activity

First Letter Card
- Say the name of the letter
- Show the uppercase letter
- Show the lowercase letter
- Ask the child to say the name of the letter
- Say the sound the letter makes
- Have the child practice saying the sound

Second Letter Card
- Say the name of the letter
- Show the uppercase letter
- Show the lowercase letter
- Ask the child to say the name of the letter
- Say the sound the letter makes
- Have the child practice saying the sound
Family Literacy, Part 6

Parent’s Guide to an Interactive Read Aloud

Before Reading:

- Read the title and the author’s and illustrator’s names
- Talk about the cover and what the book may be about

During Reading:

- Be enthusiastic!
- Ask your child questions about what you are reading
- Point out vocabulary words your child may not know

After Reading:

- Check to see if your child liked the book
- Talk about your favorite parts
Appendix G

Social Acceptability Survey
Behavioral Skills Training Survey

1. Rate how much you liked:

   a. Going over Instructions?
      | Poor | Fair | Good | Very Good | Excellent |
      | 1    | 2    | 3    | 4         | 5         |

   b. Seeing the Model?
      | Poor | Fair | Good | Very Good | Excellent |
      | 1    | 2    | 3    | 4         | 5         |

   c. Practicing the Skill?
      | Poor | Fair | Good | Very Good | Excellent |
      | 1    | 2    | 3    | 4         | 5         |

   d. Getting Feedback?
      | Poor | Fair | Good | Very Good | Excellent |
      | 1    | 2    | 3    | 4         | 5         |

2. Which part of the training did you find **most effective** in learning the new skill(s)?

   Circle one: Instructions      Modeling      Rehearsal      Feedback

3. Which part of the training did you **like** the most?

   Circle one: Instructions      Modeling      Rehearsal      Feedback

4. Any additional comments or feedback for the trainers?