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## The efficacy of parent-facilitated phonological awareness tutoring for kindergartners at-risk for reading difficulties

Michelle J. Giguere  
*University of Dayton*

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The Efficacy of Parent-Facilitated Phonological Awareness Tutoring  
for Kindergartners At-Risk for Reading Difficulties

Thesis

Submitted to

The School of Education and Allied Professions of the  
UNIVERSITY OF DAYTON

in Partial Fulfillment of the Requirements for

The Degree

Educational Specialist in School Psychology

Department of Counselor Education and Human Services

by

Michelle J. Giguere

UNIVERSITY OF DAYTON

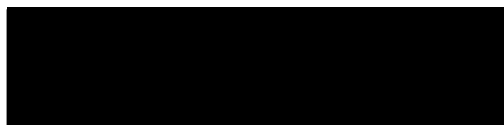
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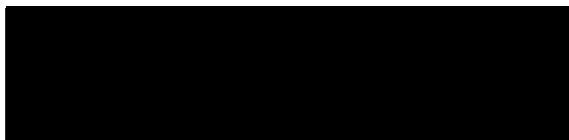
Julie Q. Morrison, Ph. D.  
Faculty Advisor and Committee Chair



Sawyer Hunley, Ph. D.  
Committee Member



James H. Evans, Ed. D.  
Committee Member



Thomas Rueth  
Chair, Department of Counselor Education & Human Services

## ABSTRACT

### THE EFFICACY OF PARENT-FACILITATED PHONOLOGICAL AWARENESS TUTORING FOR KINDERGARTNERS AT-RISK FOR READING DIFFICULTIES

Giguere, Michelle, J.  
University of Dayton

Advisor: Dr. Julie Q. Morrison

In the fall of 2004 Kindergarten students in a southwestern Ohio elementary school were screened for early literacy skills using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). Those parents whose children scored below the 20<sup>th</sup> percentile on initial sound fluency—determined to be at-risk for reading difficulties—were offered training on how to tutor their children. Parents (N=8) were taught games and activities from *Phonemic Awareness in Young Children: A Classroom Curriculum* by Marilyn Adams (1998). Those children considered at-risk whose parents chose not to participate formed the comparison group (N=7). The study used the logic of a multiple baseline across participant-groups design. Visual analysis and the percentage of nonoverlapping data points indicate that positive effects were documented only during the intervention phase and only for those children receiving parent-facilitated phonological awareness tutoring. The study offers a model for schools to utilize parent-facilitated intervention as a means of providing additional support to students at-risk for reading difficulties.

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## Introduction

Teaching children to read is one of the most important skills our educational system provides its students. Fluent reading is not a skill acquired universally or driven by physical necessity like walking. It is a complex web of knowledge and abilities that must be supported by the environment and individuals in a society. Adams (1994) speaks of the systems supporting our ability to read as analogous to a car; all the parts and mechanics must be in place before the individual can move forward in achieving the goal of fluency. If the parts of the machine are not fully operational, progress may still be made but the rate of forward movement may be seriously hampered by having to struggle with and attend to the details of the mechanics. However, putting all of the pieces in place for teaching students how to read first necessitates knowing what fundamental skills are required.

Ongoing debate about how to teach reading in the 1980s and 1990s focused on the benefits of phonics versus the whole language approach. Fortunately most educators now favor a balanced approach and the focus has instead shifted to research about what skills to teach. These foundational skills have been referred to as the "big ideas" (Good,

Simmons, & Kame'enui, 2001) in beginning reading. Viewed on a developmental continuum the prerequisite skills for reading have also commonly been referred to as early literacy skills. These foundational skills include (a) phonological awareness or the ability to hear and manipulate the sound structure of language, (b) alphabetic understanding or the mapping of print to speech, and (c) accuracy and fluency with connected text (Good et al., 2001). Tasks associated with phonemic awareness include phonemic isolation, phoneme identity, phoneme categorization, phoneme blending, phoneme segmentation, and phoneme deletion (National Institute of Child Health and Development [NICHD], 2000).

Educational accountability issues are the driving force behind many federal initiatives. The No Child Left Behind Act of 2001 (NCLB) has mandated that states focus on reading in the early grades by establishing a comprehensive reading program anchored in scientific research from kindergarten to second grade. The Reading First initiative provides funds to states implementing comprehensive research-based reading programs. Schools must adopt academic standards and align curriculum with these standards so that families, students, and educators know what to expect students to be learning at each grade level. Much of the drive for accountability is an effort to inform and involve parents: "parents will know how well their child is learning" and "parents will have more

information about the quality of their child's school" (NCLB, 2001).

Research on the effects of a strong home-school collaboration unequivocally demonstrate the benefits to all parties (Elizalde-Utnick, 2002; Esler, Godber, & Christenson, 2002). Federal & state agencies actively encourage family involvement in schools through recommended goals, practices, and materials (Esler et al., 2002).

The purpose of this study is to examine the efficacy of parent-facilitated phonological awareness tutoring with kindergarten children as compared to classroom instruction alone. The study explores whether or not parent tutoring increases phonological skill acquisition in an intervention group beyond the skill level obtained by the comparison group whose members do not receive parent tutoring. Without a solid foundation of early literacy skills reading progress can be difficult. Schools must become partners with parents in providing children a strong base for meeting academic standards. Through early identification and parent tutor training for at-risk children this study hopes to show that critical gains in early literacy skills can be achieved.

## Literature Review

### *Phonological Awareness*

Phonological awareness is a broad encompassing term that refers to the ability to hear and manipulate the sound structure of a language whether at the word, syllable or phoneme level. Skills associated with more generalized phonological awareness include the ability to identify and make oral rhymes and the ability to identify and work with syllables in spoken words. In a narrower sense this skill can include the ability to identify and work with onsets and rimes and the individual phonemes in words. The importance of phonological awareness as a keystone early literacy skill is well documented in the literature (Adams, 1994; Casey & Howe, 2002; Goswami, 2001; Lesiak, 1997; NICHD, 2000; Schneider, Küspert, Roth, Visé, & Marx, 1997). In a meta-analysis examining the scientific evidence on reading the National Reading Panel (NICHD, 2000) reported that correlational studies have identified phonemic awareness and letter knowledge as the two best school-entry predictors of how well children will learn to read during their first two years in school. Further, the Panel reports that findings show that teaching children to manipulate phonemes in words is highly effective across all the literacy domains and

outcomes. Phonemic awareness is a crucial skill due to the alphabetic nature of the English writing system where knowledge of letter-sound correspondences can assist in decoding unfamiliar words. Adams (1994) describes the reading process from a task analysis view; in order that the reader understand text he must understand individual sentences, the prerequisite skill being understanding individual words. Prior to this one must know the letters of the alphabet, understand their linguistic significance (phonemic awareness), and learn the logic and conventions governing their use (phonics). Phonemes—the sounds associated with our alphabetic language—are fixed in the mechanics of speech production and perception (Adams, 2001). Essentially, teaching children the logic of sounds in our alphabetic system requires that children learn to pay attention to something to which they have learned *not* to pay attention (Adams, 2001). Kaminski and Good (1998) refer to early literacy skills, such as phonological awareness, as “enabling skills” that facilitate the reading process, and appear to be necessary but not sufficient for success in learning to read.

Phonemes are described as the smallest units constituting spoken language that are combined to form syllables and words (NICHD, 2000). From the meta-analysis of phonemic awareness research studies the National Reading Panel subgroup concluded that (1) phonemic awareness instruction is effective in teaching children to attend to and

manipulate speech sounds in words, (2) teaching children to manipulate the sounds in language helps them to learn to read, (3) phonemic awareness instruction helps children to learn to spell, and its effect lasts well beyond the end of the training, (4) it is most effective when children are taught to manipulate phonemes with letters, when instruction is explicitly focused on one or two types of phoneme manipulations, and when children are taught in small groups (NICHD, 2000).

### *Early Assessment & Intervention*

In the current times of school accountability and high-stakes testing it has become imperative that our schools be able to assess the strengths and weaknesses of students as quickly and accurately as possible. The case for early assessment of basic literacy skills is strong (Casey & Howe, 2002; Kaminski & Good, 1998; Lesiak, 1997; NICHD, 2000; NCLB, 2001). To meet this end an early literacy assessment tool, that is a downward extension of curriculum-based measurement reading probes, is an instrument known as DIBELS (Dynamic Indicators of Basic Early Literacy Skills) (Kaminski & Good, 1998). DIBELS was developed to assist in educational decisions regarding which children might need early literacy skills intervention, which interventions prove effective, and when the interventions have succeeded (Kaminski & Good, 1998). The Reading First initiative of NCLB recommends the use of DIBELS in ongoing progress monitoring. The DIBELS assessment provides feedback on response to

intervention within a problem-solving model. In a study of instruction in decoding for Hispanic and non-Hispanic students in elementary school researchers used the DIBELS as a screening and skills assessment measure; results supported the efficacy of early identification of children at-risk for reading problems and the effectiveness of basic skill instruction for both Hispanic and non-Hispanic students (Gunn, Biglan, Smolkowski, & Ary, 2000). In a study by Haager and Windmueller (2001) teachers reported the ongoing assessment and progress monitoring capabilities of DIBELS provided an expanded awareness of their students' performance; they reported shifting from a whole-class focus to considering the instructional needs of individual students.

Hintze, Ryan and Stoner (2003) studied the concurrent validity and diagnostic accuracy of DIBELS and the Comprehensive Test of Phonological Processing (CTOPP). The CTOPP is a norm-referenced test with reliability and validity data to support its use as a measure of phonological processing. Results indicated that DIBELS strongly correlated with the CTOPP scores that are designed to measure phonological awareness. In a modified battery of DIBELS, Elliott, Lee, and Tollefson (2001) found that correlation between DIBELS-M (modified battery) and criterion measures of phonological awareness yielded a concurrent validity coefficient of .69. They concluded that the DIBELS measures provide early

literacy assessment data for use in identification of children at-risk for reading failure.

With the growing appreciation that the development of early literacy and language skills begins in infancy (Adams, 1994; Good, Gruba, & Kaminski, 2002; NICHD 2000), the need for early assessment—with the purpose of intervention— becomes more urgent. No Child Left Behind, signed into law in 2001, promotes early childhood initiatives by providing funding opportunities for states willing to implement research-based pre-reading methods in pre-school programs, including Head Start Centers. The importance of early intervention is critical for children known to be at-risk for reading failure, children with language impairments and those with a family history of reading disability (Scarborough, 2001). In a German study designed to replicate and extend an earlier Danish study, Schneider et al. (1997) found that phonological training with kindergartners yielded substantial results regardless of the language under consideration.

The case for early assessment and intervention in literacy skills is supported in two often cited studies. Stanovich (1986) coined the term "Matthew Effect" referring to a Biblical passage in which the rich get richer and the poor get poorer. Stanovich (1986) showed that those students with lower initial skills were slower at acquiring subsequent reading skills than peers who had higher initial skills. Students with lower basic skills are less motivated to read making it nearly impossible to close

the gap with more advanced peers. Analyzing the reading trajectories of students in a school district in Minnesota, Good, Simmons, and Smith (1998) concluded that "students on the low trajectory must increase their rate of progress by 3.5 standard deviations and acquire reading skills twice as fast as the mean progress of their peers to achieve the same reading rate" (p. 48). In another frequently referenced study by Juel (1988) the probability of remaining a poor reader at the end of fourth grade, if a child was a poor reader at the end of first grade, was found to be .88 and the probability of remaining an average reader in fourth grade, if the child was an average reader in first grade, was .87.

#### *Data-Based Decision Making*

Accurate data based assessment should guide intervention design and implementation in a problem-solving model. Curriculum-based measures that indicate specified criterion levels of performance can serve just such a purpose. Integral to the problem solving model is the fact that the outcomes of instruction drive decision-making (Kaminski & Good, 1998). Curriculum-based measurement (CBM) was developed as a means to monitor the "vital signs" of student achievement in important basic skills (Shinn & Bamonto, 1998). The measurement of these Dynamic Indicators of Basic Skills (DIBS) serve to provide data upon which to base educational decisions. Fiala and Sheridan (2003) used CBM probes to document reading progress for third and fourth-grade students

undergoing a paired reading strategy at home. With reading fluency probes administered twice per week the ongoing data measurement provided valuable feedback to assess intervention strategies. Curriculum-based measurement probes are useful in linking assessment data to intervention in problem solving.

Abbott, Walton, and Greenwood (2002) addressed the needs of teachers to translate research into practice with the development of a three-year program in which DIBELS was used to measure student progress.

#### *Programs for Training Phonological Awareness*

Training in phonological awareness can be accomplished with a variety of intervention strategies. Brennan and Ireson (1997) compared phonemic awareness training with kindergartners using two programs: the first was based on the metalinguistic games used in a longitudinal study of Danish school children conducted by Lundberg, Frost, and Petersen (1988) and the other program was based on Success in Kindergarten Reading and Writing (Adams, Johnson, & Connors, 1980). Researchers found that children trained with metalinguistic games significantly outperformed the Success in Kindergarten and the control group in three tests of phoneme awareness. The Success in Kindergarten program is less structured and less hierarchical than the metalinguistic games. Brennan and Ireson (1997) theorize that some children may need the explicit, step-

by-step progression through levels of phonological awareness in order to develop the necessary early literacy skills.

Using the research-based knowledge of the importance of phonological awareness, Adams, Foorman, Lundberg, and Beeler (1998) developed a classroom curriculum, *Phonemic Awareness in Young Children*, based on the linguistic games used by Lundberg et al. (1988). The most significant modification was the addition of a whole new chapter, introducing letters and spellings. Current research has demonstrated the benefit to adding spelling-sound correspondences along with speech-sound correspondences in phonemic awareness training activities (Adams et al., 1998). The curriculum is divided into seven sets of multiple lessons: listening games, rhyming, words and sentences, awareness of syllables, initial and final sounds, phonemes, introducing letters and spellings. The program was evaluated in 23 kindergarten classrooms over a three-year period in order to assess and confirm the children's growth in phonemic awareness. Focusing on prevention, Invernizzi (2001) reports on one school's efforts to advance early literacy skills for pre-kindergarten, 4-year-old children using a program based on phonemic awareness games such as those found in *Phonemic Awareness in Young Children*; by February 83% of all kindergartners were reading.

### *Role of School and Parents*

The role of the school as the primary educational provider for children has become significantly more complex over the years. Societal and family structure changes have resulted in increased demands and challenges for our school systems. With the increased training and professional development of the teaching profession has come the unintended consequence of reducing parental involvement and responsibility in children's education (Christenson & Conoley, 1992). The relationship between educators and parents is often not collaborative and can become antagonistic with each blaming the other for the student's problems. As the demands on families and schools increase, the connection between the two must change to a more equal partnership in order to support the child's best interests. According to Sonnenschein and Schmidt (2000), establishing partnerships between schools, homes, and communities is federally mandated in the National Education Goals 2000 and Title I.

The role of parents in educating children is necessarily different from that of an educational system; yet this difference does not rule out the supplemental role parents can provide in becoming involved with the school. Parental engagement in education conveys two important messages: (1) it tells the *child* that the parent views school as important and (2) it tells the *teacher* that the parent cares about the child's

schooling (Sonnenschein & Schmidt, 2000). A fairly common and important way to get parents involved is to have them read to their children at home. With guidance and direction parents can become equal partners in fostering children's literacy engagement and development.

The majority of early reading intervention programs have focused on one-on-one, and small group work using highly trained professionals. The efficacy of programs such as Reading Recovery is undeniable (O'Connor & Simic, 2002) yet the extensive training and cost may make it prohibitive for a district. For these reasons some districts have begun to look at more cost-effective means of early reading interventions. In a three-year study to assess the effectiveness of nonprofessional community volunteers, researchers concluded that findings "demonstrate the efficacy of using trained and supported volunteers as tutors in a community-based early intervention program" (Invernizzi, Rosemary, & Richards, 1997, p. 295). Other research has focused on training parents to act as tutors for their children (Cutspec, 2004; Fiala & Sheridan, 2003; Lonigan & Whitehurst, 1998; Powell-Smith, Shinn, Stoner & Good, 2000; Rubert, 1993; Valleley, Evans, & Allen, 2002). Lonigan and Whitehurst (1998) studied the effects of a shared-reading program with 3 to 4 year old children from low-income households who attended subsidized day care. Their study consisted of a control group, a school intervention group, a

home intervention group, and a combined school plus home intervention group. The study found positive effects from both teacher and parent led groups but significant effects "were largest for children in conditions involving home reading" (p. 263). Powell-Smith et al. (2000) investigated the effects of two parent tutoring programs on children's reading achievement. The researchers concluded that parents, teachers, and children in the study all believed the tutoring was worthwhile and the involvement of parents in intervention processes was more consistent with the collaborative approach of a problem solving model. Rubert (1993) found that parents demonstrated they understood and could implement intervention strategies but that they "needed scaffolds themselves while they were learning the strategy" (p. 118).

Any intervention, to be effective, must be consistently applied and the interventionist, whether it is a teacher, parent or volunteer, must be properly supported to carry out the training program. Schneider et al. (1997) found that children who were trained inconsistently did not outperform the control group in assessment of long-term training effects on reading and spelling. However, a study by Valleley et al. (2002) trained the parent of a seven-year-old boy to implement a sight-word flash-card drill, use overcorrection for errors while reading in context, and utilize rewards for reading. Results showed that the parent reliably implemented

the intervention, the child's sight word knowledge increased, and his reading fluency showed marked improvement.

### *The Home Environment*

Our knowledge of human development confirms that children do not begin kindergarten as "blank slates." Understanding the earliest impact on developing literacy has led researchers to consider the home environment's effects (Baker, 2003; Fiala & Sheridan, 2003; Lesiak, 1997; Scarborough, 2001; Wasik, Dobbins, & Herrmann, 2001). Skills for literacy development are ongoing, developmental, and linked to the child's surroundings both at home and in school (Lesiak, 1997). In a long-term study of language and literacy development with low-income children, researchers Beals, DeTemple, and Dickinson (1994) found a consistency and benefit in certain types of interactions both at home and in school; book reading activities that moved beyond the text to interactive dialogue, rich and challenging talk at mealtimes, and small group activities that supported emerging literacy skills.

In looking at the fact that reading disabilities "run in families," Scarborough's (2001) analysis revealed that "averaging across studies, approximately 40% of offspring of affected parents, but less than 10% of other children (of otherwise similar backgrounds), develop a reading disability" (p. 101). A child's home environment greatly influences later reading development. It is well established that (1) parental education

and income level are correlated with the quantity and quality of a child's early literacy experiences and (2) parental behavior and attitudes about the importance of reading affect children's achievement (Baker, 2003). Snow, Burns, and Griffin (1998) report that parental enjoyment and engagement in literacy activities determined intergenerational transmission of these attitudes. From a longitudinal study known as the Early Childhood Project it was reported that variations in parents' perspectives are associated with differences in children's home reading activities, motivation, and achievement (Baker, 2003). The Project categorized parental views on the nature of literacy as follows: (1) literacy as a source of entertainment (i.e., book reading is fun and worthwhile), (2) literacy consists of a set of skills that must be taught, and (3) literacy is an intrinsic ingredient of everyday life (i.e., functional value of literacy). The entertainment perspective was the best predictor of phonological awareness and knowledge about print and children raised to view literacy as entertainment were more advanced in their reading-related competencies (Baker, 2003). Kindergarten students in the Early Childhood Project were observed during shared reading with a parent or sibling. The affective qualities of the interactions predicted children's self-reported motivation for reading in first grade and in second grade (Baker, 2003). Children who associate reading with a comfortable and supportive environment are more likely to have positive attitudes about reading. The

quality of the interaction between parent and child when reading, further determines a child's attitudes about reading. Children who are poorer readers receive more error corrections when they read aloud than those who are better readers (Baker, 2003). Ongoing experiences that focus on accurate word recognition may diminish a struggling reader's motivation.

Parents must be encouraged to read to children on a daily basis as phonological awareness can be developed before any formal instruction in reading or spelling begins (Schneider et al., 1997). Children who were read to every day had generally higher achievement in first grade (Lesiak, 1997). In a study examining the effectiveness of paired reading, Fiala and Sheridan (2003) trained parents to use this method (simultaneous reading with child) and reported positive results. Training parents to use dialogic reading (the practice of incorporating dialogue in joint reading experiences) has proven effective in supporting the expressive language skills of a developing reader (Cutspec, 2004).

### *Meeting the Standards*

With the increased accountability concerns addressed in federal mandates, such as the No Child Left Behind Act of 2001, state departments of education are setting the bar high to ensure that all children become fluent readers. School systems will be more pressed than ever to assess and monitor every student's literacy skills and provide effective, evidence-based interventions for those who struggle with

reading. Research has supported the critical role of the home environment in children's developing early literacy skills. Ensuring that every child will learn to read proficiently by the end of third grade will require meaningful home-school partnerships.

The purpose of this study is to examine the efficacy of parent-facilitated phonological awareness tutoring with kindergarten children as compared to classroom instruction alone. The study explores whether or not parent tutoring increases phonological skill acquisition in an intervention group beyond the skill level obtained by the comparison group whose members do not receive parent tutoring.

## Method

### *Participants*

In the fall of 2004 two kindergarten classes were screened (N=44) for phonological awareness using DIBELS 6<sup>th</sup> edition as a screening tool (Good & Kaminski, 2002). Those students scoring in the lowest 20<sup>th</sup> percentile on the initial sound fluency measure served as the beginning pool of participants for this study. A prerequisite to participating in the study was that all children had passed the pre-kindergarten screening for vision and hearing. A recruitment letter was sent home to parents of all the children in the lowest 20<sup>th</sup> percentile (N=15) asking for their participation in a research project (see Appendix A). The letter explained that the research included a parental time commitment for working with their child on phonemic activities, a minimum of one hour per week, and attendance at a mandatory training session. As incentive for participation parents were offered a \$10 gift certificate to McDonald's upon completion of the intervention. Essentially the group designated for intervention was self-selected from those parents willing to participate (N=8) in the time required for training and working with their children at home. During the training session the full nature of the research was

explained and informed consent was obtained. Those parents who did not choose to participate were sent a letter asking permission to use DIBELS data for their children as a basis for the comparison groups.

The total number of students in the three intervention groups consisted of 8 parent/child dyads and the three comparison groups consisted of 7 children total (see Figure 1). In order to assign parent/child dyads to a particular group the parents attending the intervention training counted off (1, 2, 3) around the room. This determined the group that the child would be assigned to as well as the beginning date for the intervention. Comparison groups were formed through rank order matching on the first baseline measure those children in the lowest 20<sup>th</sup> percentile whose parents did not attend the training against the children in the intervention groups. The comparison groups received the standard kindergarten curriculum without the parent-facilitated intervention.

Figure 1. Student Totals Within Participant Groups

Group 1	Baseline	Intervention Group = 3 Students Comparison Group = 3 Students
Group 2	Baseline	Intervention Group = 3 Students Comparison Group = 2 Students
Group 3	Baseline	Intervention Group = 2 Students Comparison Group = 2 Students

### *Parent Intervention*

There were three components to parent engagement in this research. First, parents attended a training session that provided a brief introduction to early literacy skills, explained the goal of the intervention, and detailed the procedures and processes for intervention. The second component was the parents tutoring their children in phonological skills. Parents were expected to work with the child a minimum of 15 minutes each session 4 times a week for the duration of the intervention (6 weeks). Finally, parents were provided progress-monitoring feedback periodically during the intervention period.

The parent training session served to teach parents the methods of delivering the intervention and to ensure treatment integrity. In addition the training presented parents with a more thorough understanding of the importance of early literacy skills, and allowed a venue for asking questions and talking with other parents in order to motivate them to carry through with the intervention.

The parent tutoring sessions were conducted in the child's home. The tutoring was based on a program of activities and games developed by Adams et al. (1998) called *Phonemic Awareness in Young Children: A Classroom Curriculum*. This curriculum uses activities that focus on rhyming, initial and final sounds, listening games, and awareness of syllables. The activities align with the National Reading Panel's conclusions regarding

phonological awareness skills (NICHD, 2000). Prior to parent-facilitated tutoring the students in the intervention and comparison groups were given a minimum of three alternate forms of the initial sound fluency measure in order to establish a stable baseline.

### *Design*

The research employed a quasi-experimental time-series design using the logic of a multiple baseline across participant-groups design. This design can reveal the functional relationship between the academic skill targeted and the intervention by replicating the effects across several participant groups. The independent variable was the three components of parent engagement namely 1) the parent training session 2) parent tutoring and 3) progress monitoring feedback provided to parents by the researcher. The dependent variable, phonological awareness, was measured with weekly progress monitoring using alternate forms of the DIBELS initial sound fluency measure.

### *Procedure*

Parent training was conducted in the kindergarten classroom with one of the teachers present. Each parent was given a packet that included six games and activities to do with their child (Appendix B), intervention scripts for the duration of the intervention (Appendix C), and a reward stickers for their child to choose from at the end of each session.

The DIBELS screening was used as the first data point for all students. Each subsequent week students from the intervention group and comparison groups were administered an alternate form of the initial sound fluency probe. The first group of three students began intervention after a stable baseline of three measures was established, the second group began receiving parent tutoring after four initial sound fluency measures were taken, and the third group of two students began receiving intervention on week five.

The researcher was responsible for administering all DIBELS probes having been trained in administration by the Miami Valley Special Education Regional Resource Center. This provided the greatest degree of consistency and control and also provided valuable information obtained via direct observation. In order to encourage and support parents for their efforts each child's progress was graphed after three weeks of intervention and a letter was sent home explaining the graph and noting the increase in phonemic awareness. At the end of intervention the child's data was again graphed and sent home with a letter thanking parents for participation, a \$10 gift certificate was enclosed.

### *Instruments*

Students were screened at the end of September for early literacy skills using the Dynamic Indicators of Basic Early Literacy Skills 6<sup>th</sup> edition

(DIBELS) (Good & Kaminski, 2002). The DIBELS measures are a set of standardized individually administered probes that require one to three minutes each to complete. DIBELS measures are designed to assess a student's skills over time as change occurs. Most measures have alternate forms that allow for progress monitoring and a quick, efficient method of gauging the learning trajectory. The DIBELS website has benchmarks for each measure based on extensive research and data collection over the years. For the 2003-2004 school year, 4540 schools are actively using the DIBELS Data System, across 1413 districts in 44 states and Canada, totaling over 968,000 students (K-3).

The kindergarten measures recommended for fall administration are letter naming fluency (LNF) and initial sound fluency (ISF). In LNF, the student is given a page with both upper and lower case letters arranged in random order and asked to name the letters. The student is given one minute to name as many letters as he/she can and the score is based on the number of letters correctly named within that time. A benchmark goal is not provided for LNF since it does not correspond with a big idea in early literacy. However, according to Good et al. (2002) students at or below the 20<sup>th</sup> percentile should be considered at risk for poor reading outcomes. The single probe reliability of LNF is .93 and multi-probe reliability is .98 (Good et al., 2002). The predictive validity of kindergarten LNF with first-grade Woodcock-Johnson Psycho-Educational Battery-

Revised Reading Cluster standard score is moderate (.65, and .81) with first-grade CBM oral reading fluency (Good et al., 2002).

The initial sound fluency (ISF) probe is a measure of phonological awareness that assesses a child's ability to recognize and create the initial sound in a word presented orally. In the initial sound fluency (ISF) probe the student is presented with a page that has four pictures. The examiner names each picture and asks the child to point to the picture that begins with the sound produced orally by the examiner. The child is also asked to say the beginning sound for a word presented orally that matches one of the pictures on the probe. The calculated score results in the number of onsets correct in one minute. The ISF measure is a revision of the onset recognition fluency (OnRF) measure incorporating minimal revisions. The single probe reliability of OnRF is .65 and the multi-probe reliability is .90. The predictive validity of OnRF with Woodcock-Johnson Psycho-Educational Battery Total Reading Cluster score is .36 and .45 with CBM oral reading fluency (Good et al., 2002).

#### *Treatment Integrity & Social Validity*

During the training session each parent was given a packet of activities and materials that included an intervention script in the form of a checklist set up for weekly reporting. Parents were instructed to follow the script/checklist for each intervention session and to return the form to the child's teacher at the end of the week (Appendix C). The bottom of the

script listed an area for comments, concerns, and feedback. Several parents used the area to ask questions, explain special circumstances, or provide information on what was or wasn't working for their child.

At the end of the intervention, the parent tutors were asked to complete the intervention rating profile (Martens, Witt, Elliott & Darveaux, 1985). This is a 10 item Likert scale questionnaire (Appendix D) that provides data regarding individual's perceptions of the acceptability of the procedures and outcomes involved in an intervention. It serves as a measure of social validity. In completing this instrument the parents provided a rating on a 6-point scale, from strongly disagree to strongly agree, with numbers four through six indicating agreement.

#### *Data Analysis*

The performances of the intervention groups and the comparison groups were compared using visual analysis to determine the effects of the intervention. Visual analysis focuses interpretive attention on characteristics common to all behavioral data; these are (1) the extent and type of variability in the data, (2) the level of the data, and (3) trends in the data (Cooper, Heron, & Heward, 1987). Differences in the rate of skill acquisition for each group was also determined by calculating the percentage of nonoverlapping data points (PND) as described by Scruggs, Mastropieri, and Castro (1987). This descriptive statistic quantifies

treatment outcomes by assessing the percentage of data points in the intervention phase that exceed the highest baseline data point.

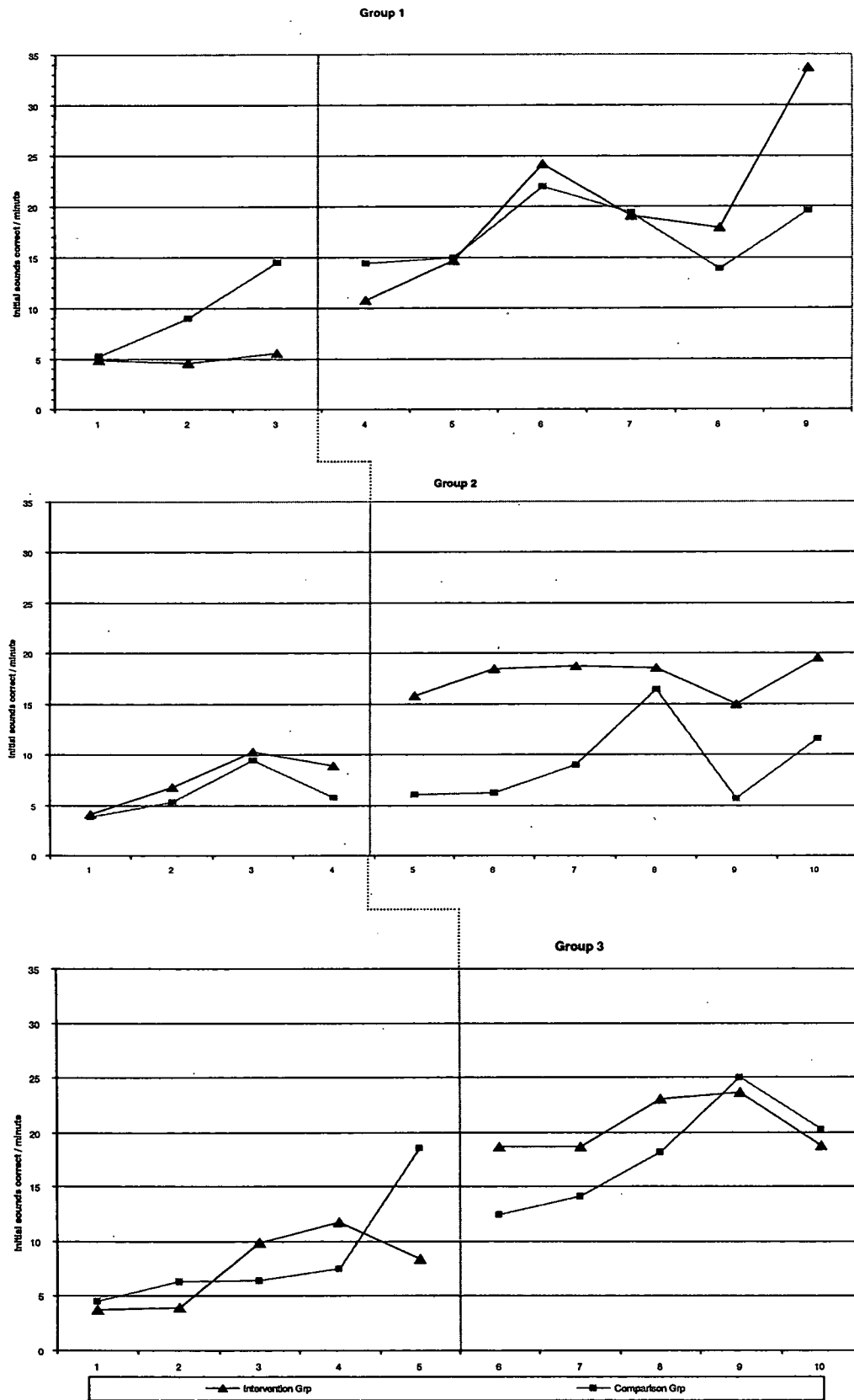
## Results

Visual analysis of the results of intervention for Group 1 shows a change in trend, level, and variability of the data for those receiving intervention while the comparison group showed only a less sharp change in trend (see Figure 2). The percentage of nonoverlapping data points (PND) for the intervention Group 1 was 100% in contrast to 67% for the comparison Group 1.

Visual inspection of Group 2 during the intervention phase shows a change in level while the comparison group showed no change in level of responding but a change in variability (see Figure 2). The PND for the intervention Group 2 was 100% in contrast to 33% for comparison Group 2.

The intervention and comparison Group 3 both show a change in level of responding; however the PND for the intervention group is 100% in contrast to 40% for the comparison group (see Figure 2).

Figure 2



The first baseline data point, a class wide measure, showed all children that participated in the research (N=15) had initial sound fluency scores that fell below the DIBELS benchmark of 8 correct initial sounds per minute. After parent-facilitated phonological awareness tutoring 62.5% of the combined intervention groups made the winter benchmark of 25 correct initial sounds per minute on the last data point while only 28.5% of the combined comparison groups met the winter benchmark.

#### *Treatment Integrity*

The return rate of the intervention scripts provided a measure for treatment integrity; intervention Group 1 was 61%, Group 2 was 83%, and Group 3 was 75%. The overall treatment integrity rate across the three intervention groups was 73%.

Six out of the eight parent tutors returned the intervention rating profile, for a 75% response rate. Total scores ranged from 40 to 58, out of 60 possible points, with a mean of 49.5 for those responding. All parents agreed or strongly agreed that this intervention was beneficial to their child. The mean ratings for each item on the Intervention Rating Profile are listed in Table 1.

Table 1 Mean Parent Ratings of the Acceptability of the Intervention

\* (where 1 = strongly disagree and 6 = strongly agree)

Intervention Rating Profile Items	Mean Ratings*
1. This was an acceptable intervention for the skill targeted for change.	5.16
2. This was an intervention that was easy to implement and maintain.	4.50
3. These activities and games might be appropriate for other skill deficits.	4.50
4. This intervention was effective in changing my child's ability to identify sounds in words.	4.83
5. I would suggest the use of these activities to other teachers and parents.	4.83
6. Most parents would find this intervention suitable for the skill area targeted.	4.83
7. This intervention had no negative side effects for my child.	5.33
8. This intervention had no negative side effects for me.	5.33
9. The procedures in this intervention were clear and easy to understand.	5.00
10. Overall, this intervention was beneficial to my child.	5.16

## Discussion

The purpose of this study was to examine the effectiveness of parent-facilitated phonological awareness tutoring with kindergarten children at-risk for reading difficulties as compared to classroom instruction alone. Visual analysis indicates that two of the three intervention groups showed a change in level of responding during the intervention phase while the comparison groups showed no such change. The third intervention and comparison groups both displayed a change in level of responding but the percentage of nonoverlapping data points for the intervention group was significantly higher than it was for the comparison group. The research established experimental control as positive effects were documented only during the intervention phase and were greater for those children receiving parent-facilitated phonological awareness tutoring.

Parent's comments on the intervention rating profile, used to measure social validity of the intervention, indicated the overall positive views. One parent wrote "My son continues to rhyme words, and play some of the games." Another stated "this study alerted us to our son's

extra need." During the intervention phase one child mentioned to the researcher that "me and my mom play these games and they're fun."

I believe the positive results achieved from this research were due to the several components that comprised the parent intervention. The training session promoted treatment integrity and motivation; the parent tutoring used the foundation of an established relationship to deliver the intervention; and the progress monitoring feedback provided additional incentive to continue intervention and connected the parents directly with their child's skill acquisition development.

#### *Limitations and Directions for Future Research*

A primary limitation to the current study was the selection-bias that led to non-equivalent groups. Those parents who volunteered for the parent-facilitated tutoring are more likely to be invested in having their child make good academic progress or have more time available for their child's education as opposed to the parents that did not volunteer.

Another limitation to the research was in knowing the length of time each parent delivered intervention. Though a minimum was set some parents are more flexible and versatile and were likely able to engage in the games and activities frequently during the course of a day while some parents who may have been working long hours or had many other responsibilities may have done the intervention in the 15 minutes before the child's bedtime. The treatment integrity checklist could be redesigned

to include a section on length of time spent on intervention and whether intervention was delivered in a formal one-on-one setting or informally during the course of daily activities.

Some parents indicated that the child became bored or lost interest in the set of games. This may have affected the level of engagement for the child and thus negatively impacted the results. Future interventions may be designed to introduce new games for each week of parent-facilitated phonological awareness tutoring.

The present study yielded some promising results and raised issues that may warrant further investigation. Future research may explore the psychosocial benefits of parents' increased engagement in their children's educational progress. Those parents who spend time actively participating in their child's education may feel more connected to both the child and the school. In addition, research may be extended longitudinally to answer the question of whether those parents who are engaged early in their child's educational development remain more actively engaged in future years.

It may be interesting to note with future research the relative merit of each of the individual components that comprised the parent tutoring intervention. To determine the most effective and cost-effective intervention package research could examine parent training only vs. training + tutoring vs. training + tutoring + progress monitoring feedback.

Many tutoring activities with school age students involve a charting aspect that allows the student to "see" his or her progress on a graph. This could be a component added to future research to determine if progress charting may motivate kindergarten students, thus producing more significant skill gains.

One final suggestion for future investigation would be to expand parent-facilitated tutoring, using evidence based interventions, to the other Big Ideas in Reading, namely alphabetic principle, reading accuracy and fluency, vocabulary, and comprehension.

### *Implications*

Early screening of kindergartners' phonological awareness skills allows a classroom teacher or school district to channel resources to those children at-risk for reading difficulties much earlier. Using DIBELS as a screening tool early in the school year would allow the schools to partner with parents on designing intervention strategies that require minimal amount of time from either the teacher or the parents.

Parents are often told to "read to your child," however they frequently do not see the direct benefit of such a pursuit. Providing parents with a structured set of activities and games that help build early literacy skills allows them to see data—through progress monitoring—that indicates the child's growth. A directive of "read to your child" is nebulous; what books should be read, how often and how much time will

it take, buying books is expensive but going to the library is time consuming. With single parent or two income families becoming the norm time has become a commodity in short supply for many families. Many of the games and activities in *Phonemic Awareness in Young Children* (Adams, et al., 1998) can be implemented during the course of normal daily routines and take as much or as little time as is available. Once the child has gained a basic understanding of rhyming and initial sound activities these games can be used in the grocery store while shopping, in the car on the way home, with siblings or other relatives, or even while reading a book. Parent-facilitated tutoring engages parents in the education of their child in a more direct way. Lonigan and Whitehurst's (1998) study supports the significant effect for children involved in home reading programs. Likewise early literacy skill development is an activity in which parents can become partners with the schools to provide the foundational skills their children need to become successful readers.

Researchers have demonstrated that parents can be effective tutors for their children (Fiala & Sheridan, 2003; Lonigan & Whitehurst, 1998; Powell-Smith, et al., 2000; Rubert, 1993; Valleley, et al., 2002) through various interventions. Research has further demonstrated that parental attitudes toward reading are critical in determining a child's motivation and achievement (Baker, 2003). By engaging parents early in a child's educational development the schools may influence parental attitudes

and perspectives on the importance of early literacy, thereby effecting positive changes for the child. Evidence of the importance of home-school collaboration in enhancing children's academic performance is readily available (Christenson & Conoley, 1992). Taking these factors into account it seems logical for schools to actively and aggressively engage parents in the educational instruction and development of their children.

Finally, with the increased focus on response to intervention (RTI) as part of the problem-solving model the time involved in implementing interventions has increased while schools struggle financially to stretch resources. The efficacy of parent-facilitated intervention would suggest that parents represent a resource for delivering interventions with the teacher's role simply one of monitoring progress and collecting data. However, parental engagement needs to move beyond the "read to your child" directive and provide evidence-based interventions in a scripted fashion for reliable and effective implementation. Progress monitoring with DIBELS represents minimal time commitment and can be done by classroom aides or community volunteers. The current study offers a model for schools to use RTI with parent-facilitated intervention and capitalize on the benefits of creating strong home-school collaborations.

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Appendix A  
Letter of recruitment

Dear Parent,

During the standard kindergarten screening to determine each child's skill level in letter naming and the sounds of letters, \_\_\_\_\_ scored in the bottom 20<sup>th</sup> percentile. Children who do so are sometimes at risk for reading difficulties. This is an important skill for your child to understand now so that he/she can make good progress to becoming a good reader. I am asking for parents to become partners with the school and take part in a research study I am conducting in order to increase your child's early reading skills.

The study involves learning a series of games and activities that you can do with your child at home. If you choose to participate it will require attending one training session at the school (at a time convenient for you) and working with your child a few evenings each week in your home. At the end of the research you will be given a \$10. gift certificate to McDonald's.

Getting a good start on basic reading skills is important for your child to be successful in school. I hope that you will be willing to become a partner with Tecumseh Elementary in your child's learning.

Sincerely,

Michelle Giguere

School Psychology Intern

\_\_\_\_ I am interested in participating

\_\_\_\_ I am not interested in participating

Parent signature \_\_\_\_\_ Date \_\_\_\_\_

Telephone \_\_\_\_\_ ☐ Work/Home/Cell

Alternate telephone \_\_\_\_\_ Work/Home/Cell

## Appendix B

# 4E Can You Rhyme?

**Objective** To teach children to depend more strongly on phonological cues to generate rhymes

**Materials** Sample rhyme phrases

**Activity** To introduce this game, read several rhyme phrases aloud, emphasizing the rhyming words. Then, challenge the children to complete each rhyme aloud. For assessment purposes, it is recommended that you periodically request responses from individuals as opposed to the whole group. Following are examples of phrases that can be used:

A **cat** wearing a \_\_\_\_\_ (hat).  
 A **mouse** that lives in a \_\_\_\_\_ (house).  
 A **moose** with a tooth that is \_\_\_\_\_ (loose).  
 A **pig** that is dancing a \_\_\_\_\_ (jig).  
 Some **kittens** wearing some \_\_\_\_\_ (mittens).  
 A **sheep** that is sound \_\_\_\_\_ (asleep).  
 An **owl** drying off with a \_\_\_\_\_ (towel).  
 A **bear** with long, brown \_\_\_\_\_ (hair).  
 A **bug** crawled under the \_\_\_\_\_ (rug).  
 An **ape** that is eating a \_\_\_\_\_ (grape).  
 A **goat** that is sailing a \_\_\_\_\_ (boat).  
 A **duck** that is driving a \_\_\_\_\_ (truck).  
 A **guy** who is swatting a \_\_\_\_\_ (fly).  
 A **bee** with a hive in the \_\_\_\_\_ (tree).  
 On the **swing**, I like to \_\_\_\_\_ (sing).  
 We drove **far** in our \_\_\_\_\_ (car).  
 Hold the **candle** by the \_\_\_\_\_ (handle).  
 Smell the **rose** with your \_\_\_\_\_ (nose).  
 Airplanes **fly** up in the \_\_\_\_\_ (sky).

**Variations** Early in the year, as children are learning to rhyme, try inventing new rhymes and singing them to the tune of "If You're Happy and You Know It" as follows:

Did you ever see a (bear) in a (chair)?  
 Did you ever see a (bear) in a (chair)?  
 No, I never, no, I never, no I never, no, I never  
 No, I never saw a (bear) in a (chair).

## Appendix C

## Parent Intervention Script

Date	Date	Date	Date	Date	Write the date in one of the boxes to the left. Check the steps that you did with your child on that date in the boxes below.

- |                          |                          |                          |                          |                          |  |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Find a quiet space for just you and your child |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Get out your child's special letter/sound book |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Review sounds of each letter in child's name   |

Choose a game or activity to play from the list below  
(Check only games played for the date at top of column)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Same Sound Bingo</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Odd Man Out</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Working on a Rhyme Book</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Word Rhyming</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Can You Rhyme?</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Rhyme Stories</b>

- |                          |                          |                          |                          |                          |  |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Praise your child                            |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Put a sticker in his/her special letter book |

Remember to repeat one activity several times before introducing a new one. Even when you do begin a new game go back and do the past games once in a while. Indicate you have done this by checking boxes for all the games you played in one evening.

## Appendix D

## Intervention Rating Profile

The purpose of this questionnaire is to determine your perceptions of the procedures and outcomes involved with this intervention. Please circle the number which best describes your agreement or disagreement with each statement.

1 = Strongly Agree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree  
5 = Agree, 6 = Strongly Agree

Strongly Disagree ..... Strongly Agree

1. This was an acceptable intervention for the skill targeted for change.	1	2	3	4	5	6
2. This was an intervention that was easy to implement and maintain.	1	2	3	4	5	6
3. These activities and games might be appropriate for other skill deficits.	1	2	3	4	5	6
4. This intervention was effective in changing my child's ability to identify letter sounds.	1	2	3	4	5	6
5. I would suggest the use of these activities to other teachers and parents.	1	2	3	4	5	6
6. Most parents would find this intervention suitable for the skill area targeted.	1	2	3	4	5	6
7. This intervention has no negative side effects for my child.	1	2	3	4	5	6
8. This intervention has no negative side effects.	1	2	3	4	5	6
9. The procedures in this intervention were clear and easy to understand.	1	2	3	4	5	6
10. Overall, this intervention was beneficial to my child.	1	2	3	4	5	6

## Appendix E

### Informed Consent to Participate as a Research Subject

**Project Title:** Phonological Awareness Training of Kindergartners At-Risk For Reading Difficulties Through Parent Tutoring

**Investigator:** Michelle Giguere

**Purpose of Research:** This research is investigating the effectiveness of parent tutors in working with children at-risk for reading difficulties.

**Expected Duration of Study:** This research should take six to eight weeks to complete.

**Procedure:** You will attend one training session at your child's elementary school during which you will be given instructions on games and activities aimed at increasing your child's phonological awareness. You will be expected to work with your child a minimum of four times a week for 15 minutes each time. After each session you will need to complete a checklist indicating what you did during that session. At the end of the research study, you will be asked to complete a 10-item questionnaire concerning your reactions to the effectiveness of this study.

**Alternative Procedures:** No alternative procedures exist in this research project.

**Anticipated Risks and / or Discomfort:** There are no anticipated risks to the physical or mental well being of the children and risks to the parents are minimal and may include a feeling of uneasiness if you volunteer and then find you are not prepared to present the material.

**Benefits to the Participant:** By participating in this research, you will receive at the end of the study a \$10. gift certificate to McDonald's.

**Confidentiality:** No records of your or your child's participation in this research will be disclosed to others. Your and your child's name will not be revealed in any document resulting from this research. The data will be recorded anonymously. Your and your child's name or other identification will not be recorded with the data.

**Contact Person for Questions or Problems:** If a research-related injury occurs, or if you have questions about the research, contact Michelle Giguere 937-767-7148 or Dr. Julie Morrison, Chaminade Hall, Room 304, 937-229-3621. Questions about the rights of the subject should be addressed to Greg C. Elvers, Ph.D., Chair of the Committee for the Protection of Human Subjects, St. Joseph Hall Room 312, University of Dayton, Dayton, OH. 45469-1430, 937-229-2171.

**Consent to Participate:** I have voluntarily decided to participate in this research project. The investigator named above has adequately answered all questions that I have about this research, the procedures

involved, and my participation. I understand that the investigator named above will be available to answer any questions about experimental procedures throughout this research. I also understand that I may refuse to participate or voluntarily terminate my participation in this research at any time without penalty or loss of benefits to which I am entitled. The investigator may also terminate my participation in this research if he feels this to be in my best interest. In addition, I certify that I am 18 (eighteen) years of age or older.

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Signature of Subject

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Date

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Signature of Investigator

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Date