RECIPROCAL PEER TUTORING EFFECT ON HIGH FREQUENCY SIGHT WORD LEARNING, RETENTION, AND GENERALIZATION OF FIRST- AND SECOND-GRADE URBAN ELEMENTARY SCHOOL STUDENTS

DISSERTATION

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BY
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* * * * *

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ABSTRACT

The purpose of the study was to examine the effects of reciprocal peer tutoring as a supplemental teaching method to the more traditional teaching method that teachers are using in classrooms to teach high frequency sight words to urban elementary school students. Peer tutoring has been demonstrated to be successful in promoting the academic and social skills of general education and special education students (Nazzal, 2002). Peer tutoring is an instructional strategy that actively engages students in learning and promotes mastery, accuracy, and fluency in content learning. However, few empirical research examined the effects of peer tutoring on the generalization of sight words learned to untrained learning materials with students who are considered at-risk for academic failure.

Ten first- and second-grade students from an urban elementary school participated in this study. All students were typically developing children designated by their teachers as academically at-risk. A reciprocal peer tutoring model was used allowing each student to be both tutor and tutee. A multiple baseline design across students was used to analyze the effects of peer tutoring on sight words learned, maintained, and generalized. During baseline all participants were instructed by their teacher on a set of five weekly words selected by the teachers. During peer tutoring all students were instructed on two sets of words, the teacher five weekly words and five unknown words selected by the
experimenter. A weekly individual pretest was administered throughout the study on the weekly sight words. Data was collected on the weekly pretests, number of words learned, number of words maintained from the previous week, and number of words generalized where students were asked to read sentences that included the words learned. Finally, student, teacher, and parent satisfaction concerning the use of peer tutoring was obtained in a questionnaire.

Results showed that participants learned, maintained, and generalized more words during the peer tutoring condition. First grade students made greater gains than did second grade students. During baseline first and second graders learned 57.4% and 92% respectively of the teacher five weekly words while during peer tutoring first and second graders learned 97.7% and 100% respectively of the same set of words. The results also showed that during peer tutoring all participants were able to learn, maintain, and generalize additional weekly sets of unknown sight words.
Dedicated to my parents
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CHAPTER 1

INTRODUCTION

Reading is essential to success in any modern society. It opens up the world for children and is the gateway to learning. Unlike any other skill, the ability to read allows children access to the collective knowledge, history, and experiences. Despite the growing awareness across the United States of the dividend of early reading success and the bleak consequences of early reading failure, a significant portion of school children have not entered the world of reading especially those children in urban schools (Good, Simmons, & Kame’enui, 2001; Simmons, Kame’enui, Coyne, & Chard, 2002). While many children enter school with numerous exposures to books and rich oral language experiences, in contrast, other children start school with very limited and poor knowledge of print and language. Consequently, those students who are poor in their reading skills have noticeable difficulty catching up to their peers (Felton & Pepper, 1995; Juel, 1988).

It is well documented that there are patterns of academic failure in reading and writing among American inner-city children in the primary grades (McGill-Franzen & Allington, 1991). Children who are not proficient and fluent readers by the end of Grade 3 are at a severe risk, not only for academic problems but also for dropping out of school (Slavin, 1994). According to the National Reading Panel (2000), 20 percent of the nation’s children encounter severe reading problems before third grade, which means,
more than 10 million children in United States who are struggling unsuccessfully to read. The size of this reading problem results in an increasing number of students who become eligible for special education services under the category of specific learning disabilities (Simmons, Kame’enui, Coyne, & Chard, 2002).

One of the most replicated and disturbing conclusions from studies of reading is that students who start their schooling career with poor reading skills are likely to have poor reading skills later (Juel, 1988; Shaywitz, Escobar, Shaywitz, Fletcher, & Makuch, 1992). As educators, our priority should be to prevent reading difficulties and to ensure that all children are readers early in their educational careers. Educators should intervene with a sense of urgency and with the most empirically-based effective tool and strategies available (Simmons, Kame’enui, Good, Harn, Cole, & Braun, 2002). It is scientifically and empirically evident that early reading proficiency is best developed through early, systematic, explicit instruction (National Reading Panel, 2000).

A significant amount of research has sought to identify and develop successful interventions for targeting populations of children including the poor, the racially and ethnically diverse and those with disabilities. Peer tutoring has been identified as one successful intervention for use with students at elevated risk of early school failure, overrepresentation in special education, and life-long literacy (Greenwood & Delquadri, 1995). Encouraging outcomes have resulted from using peer tutoring to improve academic skills for urban students (Polirstok & Greer, 1986).

*Rational for Teaching Sight Words*

Sight words are words that good readers may instantly recognize without having to "figure them out." There are two reasons why sight words are an essential component
of good reading (Fry, Kress, & Fountoukidis, 2000): First, many of these words do not sound like their spellings might suggest, so "sounding them out" would be unproductive. Also, a good reader really can't afford the time to dwell on too many words, or may lose the speed and fluency necessary for determining the author's message.

Knowing high frequency sight words can help students avoid the frustration in reading. High frequency sight words are everywhere, many of these words can be in anything that children might read (May, 1998). If students know these words, they will benefit from that knowledge in whatever material they are reading. These small successes help build self-confidence and make reading more fun. Sight words are often the guideposts for comprehension of the entire sentences. Knowing the high frequency sight words is like learning to crawl before learning to walk (May, 1998). Another reason they are called "sight words" is that many of them can't be sounded out. Students just have to remember how "sight words" look (Lee, 2002).

As mentioned earlier there is an agreement among researcher that word recognition is a forerunner to reading comprehension, and therefore, when a child has difficulties in both word recognition and comprehension, improving word recognition should be our priority (Spear-Swerling & Sternberg, 1994); if children can read words quickly and easily, their reading comprehension will improve dramatically (Tan & Nicholson, 1997). The students’ poor grades in reading appeared to be resulting not from a lack of comprehension of what they read, or failure to master the skills taught to them, but from their inability to decode and/or recognize enough words to determine what was being asked on the tests themselves (Mayfield & Holmes, 1999).
Levy, Abello, and Lysynchuk (1997) indicated that children should not be asked to read texts containing high proportions of unfamiliar words, because doing so makes them unable to focus attention on the text meaning. They maintained that improving word recognition and reading fluency leads to increased comprehension. The literature supports a strong positive correlation between word recognition and reading comprehension (Groff, 1991). Groff (1991) examined the relationship between word recognition and critical reading, he found that word recognition is necessary for literal reading, literal reading is a prerequisite to critical reading, and therefore critical reading cannot be accomplished without accurate word recognition.

Peer Tutoring

Peer tutoring refers to the delivery of instruction by one student to another. It promotes metacognition in which students achieve higher levels of thinking at a quicker rate than they might if they worked independently (Gagnon & Conoley, 1997). The peer relationships often have less rigid characteristics than teacher-student interactions in a school setting. Peer tutoring has been demonstrated to be successful in promoting the academic and social skills of general education students as well as special education students, including students who were identified as at-risk (Nazzal, A., 2002). An increased number of educators, teachers, and researchers are equally enthusiastic and consider peer tutoring as a critical strategy that promotes active learning (Gartner & Riessman, 1994). Research on peer tutoring indicates that it demonstrated its effectiveness in improving both tutees' and tutors' academic and social development (Cohen, Kulik, & Kulik, 1982; Hedin, 1987; Goodlad & Hirst, 1989; Greenwood, Delquadri, & Hall, 1989; Swengel, 1991).
Using peer tutoring to teach sight words, especially at urban schools, can be effective and a major time saver for the primary classroom teachers (Cooke, Heron, & Heward, 1983). As indicated by Cooke, Heron, and Heward (1983), sight words peer tutoring is not meant to replace the regular teacher instruction; instead it supplements existing teacher instruction by extending and individualizing drill. Several types of peer-tutoring interventions exist, such as class wide peer tutoring, cross-age, and reversal-role tutoring (Gagnon & Conoley, 1997):

(a) Class wide peer tutoring involves the entire class simultaneously participating in tutoring dyads. During each session students alternate between tutor and tutee roles. The pairing of reciprocal tutors can occur on a random basis, either in rank order to assure similar skill level, or with special considerations for students with behavior or academic problems.

(b) Cross-age tutoring occurs when an older student with relatively advanced skills is matched with a younger student deficient in some skill area or areas to deliver instruction. The role in this type is fixed, where the older student is the tutor and the younger student is the tutee.

(c) Reverse-role tutoring is where the students with disabilities act as tutors to nondisabled students. This provides the special education tutor with a new experience of providing academic help to nondisabled student.
Purpose of Study

The purpose of the study is to examine the effects of reciprocal peer tutoring as a supplemental teaching method to the more traditional teaching method that teachers are using in the classroom on the learning, maintenance, and generalization of high frequency sight words for first- and second-grade students in an urban elementary school.

Research Questions

1. What effect will reciprocal peer tutoring have on the learning of high frequency sight words for low-achieving urban first- and second-grade students?
2. What effect will reciprocal peer tutoring have on the retention of high frequency sight words for low-achieving urban first- and second-grade students?
3. What effect will reciprocal peer tutoring have on the generalization of high frequency sight words for low-achieving urban first- and second-grade students?
4. What are the opinions of first- and second-grade student participants about peer tutoring for reading high frequency sight words?
5. What are the opinions of parents of first- and second-grade student participants about peer tutoring for reading high frequency sight words?
6. What are the opinions of teachers of first- and second-grade student participants on peer tutoring for reading high frequency sight words?
CHAPTER 2

REVIEW OF LITERATURE

This review of the literature is arranged in six sections: (a) discussion of the elementary urban education and the realities of the urban learner, (b) discussion of the reading instruction and description of the popular approaches for teaching reading, (c) discussion of sight word recognition, fluency, and comprehension, (d) discussion of Active Student Responding (ASR) and related definitions of other measures. Also in this section, several ASR strategies are presented and discussed, (e) discussion of peer tutoring and teaching sight words, and (f) discussion of peer mediated instruction including discussion of peer tutoring types and benefits.

Elementary Urban Education

Educators have struggled for years to come up with solutions to improve student achievement in the low performing schools (Craig, Conner, & Washington, 2003). Urban elementary schools are growing larger, serving increasingly diverse student populations and needs, and growing referrals to special education programs and services (Smith, 2000). Such schools are increasingly consisted of students of color and students from lower socioeconomic status (SES), which creates a pattern of urban schools that is mostly
minority and poor while suburban schools are mostly white and middle class (Warren, 2002; Gardner & Talbert-Johnson, 2000).

Among the many problems that continue to be experienced by these schools are: low achievement, disproportionate assignments in special education, high dropout rates, and academic disengagement (Haycock, 1998). In addition, children in these schools place significantly below their peers on all measures of academic achievement, including grades, standardized test scores, rates of graduation, and percentage entering the higher education. What is more alarming is that the gap in continually increasing (Haycock, 1998).

The realities of urban education in general and elementary urban education in particular are bleak. The following statistics reflect these realities: 40% of African American and Hispanic children live in poverty (Dalaker & Naifeh, 1998), urban children receive an education in schools with limited resources compared to the schools of their more well off peers (Kozol, 1991), and some of these urban children tend to make multiple transfers during the school year. It is well documented that educators in urban settings are facing more qualitative challenges than their counterparts in suburban settings. Such challenges and concerns include more violence, less funding, and inadequate preparation of educators to provide culturally responsive instruction for students in urban settings (Gardner & Talbert-Johnson, 2000). The literature reveals that African American male students are far more likely to receive disciplinary actions, suspended, and expelled, and they are overrepresented in special education and underrepresented in gifted programs (Craig, et al., 2003; Russo & Talbert-Johnson,
The alarming situation here is that these students enter school without the basic skills to succeed and their performances remains below the norm.

Children in elementary urban schools in general and African American students in particular, are at high risk for reading failure. As measured by the National Assessment of Educational Progress (NAEP), 63% of African American students are much more likely to read below basic levels compared to 27% of majority students on the 1999 administration (Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001). While many children are most frequently referred for special education because of concerns about their reading skills, many children who have difficulty reading do not qualify for special education services (Curtis, Zins, & Graden, 1987); therefore it is important and essential to develop effective interventions which may easily be implemented in the regular classroom setting.

In addition to the inadequate education that students in elementary urban schools receive, the leadership is also a big problem. As Gardner and Talbert-Johnson (2000) noted that leaders in urban schools typically last only 2 to 3 years because of the overwhelming pressures of the job. Another critical issue and concern is the shortage of certified teachers. Howey and Zimpher (1991) mentioned that the majority of job openings for educators remain in large urban areas because educational leaders in all schools are faced with the challenges of recruiting and retaining qualified personnel to teach in urban schools.

Large number of children and youth are unsuccessful in completing the traditional school curriculum (Rush & Vitale, 1994). The high dropout rates are concentrated in urban school districts, some as high as 60% (Craig, et al., 2003; Levin, 1988). In a recent
report of the Ohio Department of Education (2003) it was reported that the high school graduation rate of African American is 61% compared to 83% of all groups of students.

Perhaps the best answer to the previously mentioned facts regarding school failure in general and reading failure in particular is early prevention. Torgesen (1998) had noted that “The best solution to the problem of reading failure is to allocate resources for early identification and prevention.” (p.32). As noted earlier, the students who are behind in reading in the early grades remain behind (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Torgesen, 1998). Educators can not wait to intervene until the middle elementary years without severe consequences for the children.

Reading Instruction

During the past 40 years, there has been extensive public debate about how best to teach children to read. Some educational researchers propose instruction emphasizing sound-letter relationships (phonics) (Brabham & Villaume, 2003; Ehri, Nunes, & Stahl, 2001), while others emphasize immersion in language and literature (whole language) (Dahl & Scharer, 2000; Daniels, Zemelman, & Bizar, 1999; Traw, 1996). Often these two factions are at odds with each other. Policymakers, parents, and educators in each camp have voiced strong opinions on the merits of their respective approach and have blamed the other camp for plummeting reading scores or decreased interest in reading (Pressley & Wharton-McDonald, 1997).

Two general approaches have emerged from the lengthy and often acrimonious debate over how best to teach young children to read. First and perhaps the oldest approach is bottom-up, phonics, or code-emphasis approach to reading (Joseph, 2002). Teachers who use this approach usually begin by having children associate sounds with
individual letters and letter combinations. The children are then taught the strategy of sounding out or decoding words (Joseph, 2002). They are also taught when to use this strategy in combination with various rules in order to overcome certain exceptions to general sounding out principles (Smith & Elley, 1994). The second approach, referred to as top-down or meaning-emphasis, is found today mostly in programs that make use of whole-language procedures. Here the teaching of decoding skills is de-emphasized. Instead, children are taught to recognize words largely by appearance and to focus on the overall meaning of a story together with story context cues such as pictures to help them with words that may be difficult to read (Smith & Elley, 1994).

Although it is widely recognized that whole-language programs contain a number of features that can benefit children in many ways (Chaney, 1990; Fox, 1986; Froese, 1990; Heymsfeld, 1989), the accumulated evidence suggests that whole-language may not be appropriate for all children and that for some children, it may even lead to serious reading problems. In particular, children at risk for reading failure as well as those from disadvantaged backgrounds who lack prerequisite literacy skills often require more structure and greater emphasis on phonics than most whole-language programs provide (Berninger, Thalberg, DeBruyn, & Smith., 1987; Carnine, Silbert, & Kameenui, 1990; Chall, 1989; Chaney, 1990; Oakhill & Garnham, 1988; Stahl & Miller, 1989; Stahl, Osborn, & Lehr, 1990). Unfortunately, the use of whole-language approach may prevent schools with large numbers of disadvantaged children from providing these children with beginning reading programs that are more appropriately geared to meeting their needs.

Research indicates that word decoding, vocabulary, and comprehension abilities may not develop adequately without direct explicit decoding instruction (Stahl & Miller,
Development of letter-sound associations and explicit decoding instruction focusing on the sounds of words is definitely associated with later reading success (Adams, 1990). Especially with respect to the weakest beginning readers, the case is strong that explicit decoding instruction increases reading competence (Adams, 1990; Pressley & Wharton-McDonald, 1997).

In a study conducted by Mayfield and Holmes (1999), the researchers examined whether a minimum amount of direct instruction in sight word recognition, combined with drill of sight words, could result in significantly better performances for the targeted at-risk children on the story and unit reading tests. They compared two groups, control and experimental. The control group consisted of 16 students in an at-risk self-contained class; the experimental group consisted of 11 at-risk students, of which three were special education inclusion students. Both groups received 165 minutes of language arts instruction daily from their respective regular education teachers. The control group students received instruction in the basal reading series from their regular education teacher in a whole-group setting. The intervention used with the experimental group focused on expansion of direct instruction in vocabulary associated with each story and unit test. Data were collected over a six-week period. The findings revealed a significant difference between experimental and control group scores, in favor of the experimental group. The results were that a very brief use of direct instruction in sight word recognition combined with daily word drill assignments resulted in vocabulary and comprehension unit test scores of at-risk third graders significantly higher than those of control group students.
Basal Approach

Basal approach is another common approach to reading instruction which began as an effort to standardize reading instruction across the country (Allington & Cunningham, 1996). It involves the use of basal readers. Most basals include instruction in phonics of some kind. Some basals offer intensive phonics instruction, but most basal programs begin with sight words from predictable stories and place more emphasis on comprehension than on phonics. While basals differ in their emphasis, they all offer stories of gradually increasing difficulty with an emphasis on teacher-guided reading of generally shorter selections (Allington & Cunningham, 1996). It is a teacher centered learning, teachers usually follow certain manuals that give them explicit directions about what to say, what questions to ask students as well as skill workbooks to reinforce what was taught in each lesson. The class as a whole reads the same story and works on the same skill.

Basal approach emphasizes that word is the most important part; texts include word families like "should, would, could" and also phonics skills. For assessments, teachers use norm referenced tests where each story and unit had an accompanying test. The selection of these units and stories usually have controlled vocabulary, controlled readability, and selected presentation of skills. Contents often include scope and sequence charts, specific directions for teachers, student workbooks, end-of-unit tests, and end-of-book tests.
Whole Language

Whole language is a perspective on education, a philosophy of education that can be characterized as a "constructivist" view of learning, with particular emphasis on the development of literacy. Constructivism asserts, as derived from research in cognitive psychology, that human beings develop concepts through their own intellectual interactions with and actions upon their world (Harste, 1989). Whole language is a total literacy immersion program where the focus is on creating meaning through reading and writing (Harp, 1991). Whole language or Top-down approach encourages beginning readers to rely on textual cues such as pictures and other words to identify unknown words in a passage and emphasize reading for meaning.

Whole language interventions include methods such as Reading Recovery. In this program, children receive one-on-one tutoring in skills such as reading familiar stories, and writing messages or stories, etc. (Pinnell, Fried, & Estice, 1990). Whole language approaches may offer the added benefit of enhancing motivation-related responses (Dahl & Freppon, 1995; Freppon & McIntyre, 1999), often an obstacle for emergent readers.

Direct Instruction

Direct Instruction (DI) is a highly structured instructional approach, designed to accelerate the learning of at-risk students. Curriculum materials and instructional sequences attempt to move students to mastery at the fastest possible pace. The oldest version of the program, Distar, was developed in the 1960s as part of Project Follow Through (Meyer, 1984). Despite its success in raising student achievement levels, Distar was heavily criticized for being too rigid; concentrating too heavily on the basics; and for some vendors' poor implementation practices, such as selling it without support as a
"teacher-proof" program (Meyer, 1984). DI has been expanded and enriched from the original Distar program. Although the early mastery of basic skills is still a key element, the program also addresses students' general comprehension and analytic skills. While DI has been used successfully as a school-wide program, the reading and language arts (and sometimes math) portions of the program are more frequently purchased for separate implementations. Either way, adequate professional development, ensuring that practitioners understand what the program is and how it works, is essential for successful implementation.

The term "Direct Instruction" refers to a rigorously developed highly scripted method for teaching reading, writing, math, spelling, and thinking skills that is fast-paced and provides constant interaction between students and the teacher. At a time when public schools are facing many challenges and are increasingly held accountable for students’ achievement, and for narrowing and preventing the achievement gap between minority/disadvantaged and advantaged students, Direct Instruction provides highly effective programs, its implementation improves students’ engagement and achievement, and equips teachers with an effective tool for instruction and evaluation (Kozioff, LaNunziata, Cowardin, & Bessellieu, 2001).

The main characteristics of Direct Instruction as described in Heward (2000) are:

- High rate of student engagement. The relatively small size of the group (5 to 10 students) that Direct Instruction is conducted with, allows high rates of student engagement.
• Immediate feedback. All the correct responses are praised immediately, and the incorrect responses are corrected immediately in a way that the student ends up making the correct responses.

• Scripted lessons. What the teacher should do and say for each item in the lessons is scripted. This saves teachers’ time and ensures consistency and quality instructions across teachers.

• Learner-tested curriculum design. The Direct Instruction designers have tested the programs carefully and thoroughly before publishing them. They were field tested and the revision was based on the data that was obtained according to the students’ performance.

• Powerful results. Many studies revealed the same findings: Direct Instruction works provides rapid gains that persist, and presents gains that increase self-esteem since children have real skills they can be proud of (Kozioff, et al, 2001). Moreover, Direct Instruction was compared with nine other models of instruction in the largest education evaluation ever conducted, called Follow Through, sponsored by the U.S. Department of Education and conducted by the Stanford Research Institute. Follow Through ran from 1967 to 1970, costing over $600 million, and covering 79,000 children in 180 communities. An evaluation of the project was conducted involving more than 8,000 children participated from 20 communities who were taught by one of nine different models. The results showed that Direct Instruction was superior both to control schools and to every other model in fostering basic reading and math skills, and even self-esteem (Kozioff, et al, 2001; Heward, 2000).
Sight Word Recognition and Comprehension

Sight word recognition plays an important role in comprehension and in the development of word identification skills for reading new words. According to Watson, (2001) word recognition can be defined as “the process by which any perceived event will automatically activate or ‘turn on’ a person’s memories of similar events past” (p. 69). The purpose of word-level interventions is to help children eventually read words with automaticity (Joseph, 2002). When students have mastered a bank of words they can read with little effort, they will be able to identify new words by analogy (Goswami & Bryant, 1990), where they can use known words and spelling patterns to figure out unknown words. Subsequently, when children are able to connect sounds to letters, they are able to read words more easily by sight especially when they engage in repeated readings of words (Samuels, 1998). Repeated exposures to words in multiple contexts are also important for increasing automaticity (Pressley, 1998).

Word recognition has been identified as an integral component of reading fluency (Harris & Hodges, 1981; Moyer, 1982). The quick and automatic recognition of sight words is important for fluency as well as comprehension as it frees up the reader’s cognitive resources for comprehension processes (Scarborough, 2001). Reading fluency is considered to be a critical element in reading development and achievement. Researchers have set out to identify specific instructional approaches for developing reading fluency in ways that can be integrated into the regular school curriculum (Rasinski, Padak, Linek, & Sturtevant, 1994). LaBerge and Samuels (1974) proposed that learning to read involves increasing automaticity in processing word units (i.e., letter-sound correspondences), processing these units into recognizable words, and connecting
the words while reading a passage. Improvement in the processing of units, words, and
connected text cognitively releases the reader to think about the meaning of the text
(Chard, Vaughn, & Tyler, 2002). The theory of automation processing resulted in
research that focused on improving the speed at which students recognized words (Ehri &
Wilce, 1983).

The verbal efficiency model of Perfetti (1977, 1985) suggests that slow word
processing speed interferes with automaticity of reading and, consequently, with
comprehension. Nevertheless, Prefetti expand this explanation to suggest that slow word
reading is also unbearable because it consumes working memory and, therefore, prevents
the students from thinking about the text while reading. Slow word reading averts
working memory with the processing of word-level reading to prevent understanding at
the content level. Hence, rapid reading of high-frequency sight words and rapid decoding
as a means to enhance text understanding appear critical for typical reading development
(Fuchs, Fuchs, Hosp, & Jenkins, 2001; Kuhn & Stahl, 2000; Meyer & Felton, 1999).

Smith (1982) describes whole word identification as one instructional method for
word recognition. This approach is based on the idea that the reader does not stop to
identify individual letters to recognize a word. Instead the reader recognizes the word as
a unit. The words are recognized from their distinctive features, or the visual information
of the print. Through a cognitive process, sight words are analyzed and word features and
configurations are classified into different categories. Words are identified when they
match known configurations. Through this process, no letter identification is used. When
a word is unknown to the reader, its identification must be discovered through another
method (Welsch, 1994).
Browder and Xin (1998) conducted a comprehensive review of sight word research with individuals with disabilities since 1980 to determine the overall effectiveness of sight word research and its specific impact on individuals with moderate and severe disabilities. In addition, the review identified innovations in instructional strategies developed since prior reviews. A meta-analysis using the percentage of non-overlapping data points (PND) revealed that sight word instruction has been highly effective across individuals for people with moderate and severe disabilities. New strategies have included giving instructive feedback for additional learning, applying constant time delay in group formats, and using more elaborate feedback procedures in a postresponse prompting format. These innovations also included teaching sight words in the context of the community and in general education classes using either heterogeneous groups or peer tutoring.

Summary

Several different perspectives exist on the best approach to teaching a child to read. Perhaps most decisive has been the debate between those who advocate a whole language or word-level approach to reading instruction versus those who support a phonological or letter-level approach. There is much controversy concerning the benefits of each of these approaches to reading instruction (Pressley & Wharton-McDonald, 1997). Although whole-language programs are considered to contain a number of features that can benefit children in many ways (Chaney, 1990; Fox, 1986; Froese, 1990; Heymsfeld, 1989), research suggests that whole-language may not be appropriate for all children especially those who are at risk for reading failure (Berninger, et al., 1987; Carnine, et al., 1990; Chall, 1989; Chaney, 1990; Oakhill & Garnham, 1988; Stahl &

Active Student Responding

Hart, Walker, and Risley (1994) argued that the frequently observed delays in the academic achievement of inner-city, low SES students is due to the instructional strategies used by teachers that do not engage the students’ academic behavior for sufficient periods of time each school day. They suggested the need to promote higher rates of academic behavior for all students for longer periods by ensuring that teacher instruction occasioned active academic responding.

Researchers and theorists concerned with learning time often begin their comments with a nod in the direction of John B. Carroll, whose landmark 1963 article, "A Model of School Learning," defined degree of learning as time actually spent in learning divided by time needed for learning. Carroll's work is widely regarded as the beginning of modern inquiry into the effects of time factors in the learning process.

Cotton (1989) noted that understanding the research on the effects of time factors requires some familiarity with the different kinds of educational time with which researchers are concerned. The following definitions she reported are taken from the work of Anderson (1983), Bloom (1976), and Fischer, et al. (1980):
Allocated time: is the amount of time specified for an activity or event. When educators and educational researchers speak of allocated time, they are referring to one of the following elements:

1. School time. The amount of time spent in school. When used this way, allocated time may refer to the number of school days in a year or the number of hours in a school day.

2. Classroom time. The amount of time spent in the classrooms within the school (i.e., excluding lunch, recess, time spent changing classes, etc.).

3. Instructional time. The portion of classroom time spent teaching students particular knowledge, concepts, and skills pertaining to school subjects (i.e., excludes routine procedural matters, transitions, and discipline).

Engaged time/time on-task. Refers to portions of time during which students are paying attention to a learning task and attempting to learn. This excludes time spent socializing, daydreaming, engaging in antisocial behavior, etc.

Academic Learning Time (ALT). Refers to that portion of engaged time that students spend working on tasks at an appropriate level of difficulty for them and experiencing high levels of success (excludes time spent engaged in tasks which are too easy or too difficult). The concept of Academic Learning Time (ALT), surfaced as the primary measure of student engagement and contact with the curriculum (Heward, 1994). ALT is a term and concept emerging from a large-scale research effort called the Beginning Teacher Evaluation Study (BTES) conducted in the 1970s (Cotton, 1989).

Other important definitions are:
**Opportunity To Respond (OTR)**. Refers to the interaction between (a) teacher formulated instruction … (the materials presented, prompts, questions asked, signals to respond, etc.), and (b) its success in establishing the academic responding desired or implied by materials, the subject matter goals of instruction.” (Greenwood, Delquadri, & Hall, 1984, p. 64).

**Active Student Responding (ASR)**. Refers to observable response made to an instructional antecedent. In other words, ASR occurs when a student emits a detectable response to ongoing instruction (Heward, 1994).

In comparing Active Student Responding with other measures, Heward (1994) noted the following: (a) allocated time is not a direct and ongoing measure of what students do during instruction, (b) research revealed that increasing student’s on-task behavior does not necessarily result in an increase in the amount of academic responses the students emits, (c) while ALT literature offers a great deal of empirical support for the basic relation between active student responding and achievement, ALT cannot provide an account of the actual number of learning trials in which a student participated during instruction, (d) OTR measure incorporates seven different categories of appropriate academic responding and consider attention or on-task behavior as competing responses. It provides a very precise and conservative measure of student engagement time, (e) although ALT and OTR include ASR, neither of these time-based measures provide an account of distinct learning trials, (f) ASR is the most direct measure of a student’s academic responding during instruction. The number of academic responses the student makes during a period of time is more important than being engaged during that time.
Research repeatedly demonstrated the positive relationship between active student responding and academic achievement. Behavior analysts were not the only researchers to discover this relationship; the same conclusion has been reached by the educational researchers who utilize group comparison and statistical inference methodology (Heward, 1994). ASR offers several advantages as a measure of student participation (Heward, 1994):

1. It is a direct measure of student performance.
2. ASR can be a measure of how much learning is taking place.
3. Primary ASR can be reported as frequency counts. This method is more sensitive to changes in the instructional environment than time-based measures or percentages.
4. ASR can be measured in a variety of settings and across all curriculum areas.
5. ASR is a simple measure that teachers can use to directly and frequently measure student learning outcomes.

The characteristics of ASR (frequent academic responses, immediate corrective feedback and positive reinforcement) are utilizing within several strategies such as choral responding, response cards, guided notes, and peer tutoring. In the following section each of these strategies will be discussed separately.

Choral Responding

Choral responding considers one of the low-tech ASR teaching strategies and the easiest to implement. Simply, it is when each student in the class responds orally in unity (Heward, 1994). Choral responding is one of the oldest methods of teaching strategies. Teachers used this methods long time ago in their classrooms. Many teachers today do
not use choral responding systematically in their classrooms, and they use it only occasionally. Empirical research has demonstrated that choral responding can increase both active student responding and academic performance (Carnine, 1976; Heward, Courson, & Narayan, 1989; Sindelar, Bursuck, & Halle, 1986; Wolery, Ault, Doyle, Gast, & Griffen, 1992).

In a study conducted by Sainato, Strain, and Lyon (1987), the researchers had experimentally assessed choral responding with a group of ten preschool children with developmental disabilities. Learning trials with choral responding were presented to the children at two different rates, three per minute and five per minute. The findings of this study were consistent with the findings of other studies, the researchers reported high rates of student participation, increased levels of correct responding, and decreased levels of off-task behavior with the faster presentation rate. Sindelar, Bursuck, and Halle, (1986) also investigated the effects of choral responding when they compared the effects of ordered response with choral responding during small group instruction of 11 students with mild handicaps. Their findings revealed that not only did the three groups participating in the study learned an average of four more words in the unison condition than in the ordered condition, but also the students remembered more of the words taught using the choral responding than students taught using the ordered response.

Response Cards

Over the years researchers have demonstrated that students’ learning is enhanced dramatically when student engaged actively during instruction (Maheady, Michielli-Pendl, Mallette, & Harper, 2002;). This means that students are actively participating in class by asking and answering questions, discussing content-related information with
peers. Students who are at-risk of academic-failure are the ones who are in a greater need to participate actively in class activities in a way that points out their strengths and overcome their weaknesses.

Response cards are considered effective strategies that promote active students’ participation even in large classrooms. They are cards or signs that students hold up simultaneously to display their response to each question or problem presented by the teacher. Teachers can modify the answers that the students need to display according to their needs.

This strategy has been empirically examined on elementary, secondary, and college students. The findings showed that when response cards are used: (a) students make significantly more academic response when compared to the traditional methods, such as raising hand; (b) their grades improve, and in general, (c) they prefer using response cards over traditional teaching methods (Gardner, Heward, & Grossi, 1994; Heward, et al., 1996; Kellum, Carr, & Dozier, 2001).

In a recent study, conducted by Maheady, Michielli-Pendl, Mallette, and Harper (2002), the effects of response cards, number heads together, and whole group question and answer strategies, were all compared when applied to 6th graders daily quiz scores and pretest-posttest performance in chemistry. Moreover, the authors examined how each instructional intervention affected teacher questioning and student responding patterns in class. The participants were students enrolled in a general science class in a small, urban, racially- and ethnically-integrated school system. The students were Hispanic, African Americans, and Caucasian. The results indicated that both response cards and number heads together were more effective than the traditional way of whole group question and
answer techniques in (a) improving students’ performance on daily chemistry quizzes, (b) increasing active student involvement during teacher-led instruction, and (c) enhancing students satisfaction with instruction procedures and outcome.

In another study conducted by Lambert (2001) where he evaluated the effects of response cards on the disruptive behavior and academic responding of fourth-grade urban students, similar findings were found. In this study the data were collected during math class on nine students in two fourth-grade classrooms. Two conditions, single student responding (hand raising) and write-on response cards, were alternated using an ABAB design. Single student responding, which was representative of typical classroom instruction, involved the teacher calling on one student who had raised his or her hand in response to the teacher’s question. On the other hand, the response card condition was designed so that through write-on boards each student had the opportunity to respond to every question the teacher raised as part of the math instruction. Although all students in both classes received the instruction, students selected for data collection were those found to be the most disruptive in the class. Direct observations with a 10-second, partial interval recording procedure revealed substantial reductions in disruptive behaviors and increases in academic responding during the response card conditions.

Gardner, Heward, and Grossi (1994) also conducted a study using response cards during science instruction in a fifth-grade inner-city classroom. As in the previous study, the research consisted of two methods of student participating which are hand raising and write-on response cards. The two conditions alternated in an ABAB design. During hand raising condition, the teachers called upon one student who had raised his or her hand in response to the teacher’s question. On the other hand, during the response card condition,
each student was provided with a laminated board on which to write one- or two-word answers in response to each question asked by the teacher. The findings of this study was consistent with other studies, the findings revealed that the frequency of active student response was 14 times higher with response cards than with hand raising. All the students scored higher on next-day quizzes and on 2-week review tests that followed instruction with response cards than they did on quizzes and tests that covered facts and concepts taught with the hand-raising procedure.

**Guided Notes**

Another strategy to increase active student responding is guided notes. Guided notes, as described by Heward (1994), are teacher-prepared handouts that “guide” a student through a lecture with standard cues and prepared space in which to write the key facts, concepts, and/or relationships. In addition, it is a method for organizing and enhancing curriculum content where students with disabilities and their typically developing peers are provided with a means of actively participating during a lecture (Heward, 1994; Lazarus, 1996). The literature revealed that students receive higher test scores when they take adequate notes during lectures and study them later (Baker & Lombardi, 1985). Note-taking should serve at least two functions, regardless of the format that is being used. One is related to active responding during the lecture, and the other one is related to the opportunity of providing written summary of key facts, concepts, and relationships for future review and study (Boyle, 2001; Kierwa, 1987).

The results of a study conducted by Hamilton, Seibert, Gardner, and Talbert-Johnson (2000) were consistent with several other studies in demonstrating the effectiveness of guided notes in improving the academic performance (Kline, 1986;
Yang, 1988). This study examined the effects of guided notes on the academic performance of seven students with learning and behavior problems, who were in a medium-security juvenile detention center. The findings indicated that using guided notes could be an effective strategy for improving the academic performance of youth with learning and behavior problems.

Another study conducted by Sweeney, Ehrhardt, and Gardner (1999) where they evaluated the effects of guided notes on the performance of academically at-risk high school students during a remedial summer American History class. The study compared students’ own note-taking strategies with that of short- and long-form guided notes. A modified ABAB reversal design with an imbedded alternating treatments design during intervention was used to compare the effects of students’ notetaking accuracy and daily quiz scores while taking their own notes with the effects of responding under the short- and long-form guided notes. The results indicated that both guided notes procedures were successful at increasing the accuracy of students’ notes, improving session quiz scores, and were more preferred when compared with students taking their own notes.

Peer Tutoring

Peer tutoring refers to the delivery of instruction by one student to another. It promotes metacognition in which students achieve higher levels of thinking at a quicker rate than they might if they worked independently (Gagnon & Conoley, 1997). The peer relationships often have less rigid characteristics than teacher-student interactions in a school setting. Peer tutoring has been demonstrated to be successful in promoting the academic and social skills of general education students as well as special education students, including students who were identified as at-risk (Nazzal, 2002). An increased
number of educators, teachers, and researchers are equally enthusiastic and consider peer tutoring as a critical strategy that promotes active learning (Gartner & Riessman, 1994).

Research on peer tutoring indicates its effectiveness in improving both tutees' and tutors' academic and social development (Cohen, Kulik, & Kulik, 1982; Hedin, 1987; Goodlad & Hirst, 1989; Greenwood, et al., 1989; Swengel, 1991). Miller, Barbetta, and Heron (1994) provide a practical guide to the steps involved in carrying out a successful peer-tutoring program. They outline five sequential steps, from choosing the tutoring format and training the tutors through testing for effectiveness. The five steps are, Step 1: Select a tutoring format; Step 2: Train the tutors; Step 3: Arrange the environment; Step 4: Run the program; Step 5: Test for effectiveness. Peer-tutoring programs can be structured so that all participants benefit. Peer tutoring can lead to social and academic development. Besides the improved use of instructional time, some positive outcomes are increased learning, social growth, and friendships among students.

Peer Tutoring and Teaching Sight Words

Using peer tutoring to teach sight words, especially at urban schools, can be effective and a major time saver for the primary classroom teachers (Cooke, Heron, & Heward, 1983). As indicated by Cooke, Heron, and Heward (1983), sight words peer tutoring is not meant to replace the regular teacher instruction; instead it supplements existing teacher instruction by extending and individualizing drill. Cooke, et al. (1983) offer a detailed procedure including effective methods and materials with advice to implement peer tutoring to teach sight words in particular. They discuss sight word selection, tutor training, and the teacher's role.
In a study conducted by Neubauer (2002), where the effects of a class-wide peer tutoring system on the acquisition and retention of high frequency sight words for first-grade students in an urban elementary school had been examined. First-grade students were trained to tutor their peer partners in reading words designated by the classroom teacher. Peer tutoring activities were implemented two days per week for 30 minutes each day. The experimenter conducted individual assessments on taught words three times weekly. A single-subject ABCBC design was used to monitor the effects according to the conditions of (A) teacher instruction alone (without peer tutoring), (B) teacher instruction plus peer tutoring, and (C) teacher instruction, peer tutoring, and group-oriented contingencies. The findings revealed a functional relationship between peer tutoring and improved reading performance for first-grade low-achieving students.

In another study conducted by Butler (1999), the researcher aimed to explore the effects of classwide peer tutoring on the acquisition of sight words in a self-contained class of 10 fourth- and fifth-grade students with mild to moderate disabilities. The study spanned 38 sessions over eight weeks. All the students were trained using a tutoring package consisted of pretesting, tutor training, daily peer tutoring sessions, testing, and charting. The tutoring procedure was an approximate replication of the program developed by Cooke, et al. (1983) and also used by Miller (1988). Because learning to read is a functional skill, the author decided to use high frequency words for this intervention. The findings of this study showed that, overall, students improved in their sight word reading through the usage of CWPT; they made an average gain of one grade level in the eight-week period of the study. The degree of disability did not impede their learning in the tutoring format. The students enjoyed the tutoring package and began to
generalize tutoring behaviors across other subjects. The program was easy for the teacher to administer.

In a general education setting, Fasko (1996) conducted a study where he assessed the effectiveness of a peer tutoring intervention for sight-word acquisition, and determined whether any progress was matched by improvement in reading fluency. Four primary students were selected based upon teacher referral for poor reading fluency. The researcher used flashcards to determine accuracy of recognition of vocabulary words listed in each student’s current and previous reading books. Number of words correctly identified was recorded for each child. In addition, reading rate in the form of correct words and errors per minute was also assessed. Reading passages for evaluating rate were chosen randomly from each student's current reading book. The design that was used is a single-case A-B design. Both sight word recognition and reading fluency were assessed 1-2 times weekly for each student. After baseline data were collected, the tutoring phase began. Results indicated that three of the four students showed improvement in sight-word acquisition during the intervention phase, and all four showed a significant improvement in fluency.

Peer-Mediated Instruction

Peer-Mediated Instruction (PMI) is an alternative classroom arrangement in which students take an instructional role with classmates or other students. Utley, Mortweet, and Greenwood (1997, p.1) defined PMI as “an instructional alternative in which peers are used as instructional agents or helpers in promoting students’ learning”. Certain strategies have been developed in which students work in pairs (dyads) or small cooperative learning groups. To be successful, students must be taught their roles, be
systematic, elicit responses, and provide feedback. PMI has promoted active student responding, improved academic achievement, and enhanced social and behavioral skills (Greenwood, Carta, Kamps, & Arreage-Mayer, 1990).

Some teachers may be reluctant to use peer-mediated strategies because the teacher’s role is no longer the traditional role that is teachers are the only source of information and instruction (Aronson & Goode, 1980; Moskowitz, Malvin, Schaeffer, & Schapps, 1983). Therefore and through empirical research, it is important to demonstrate the efficacy of such strategies and teaching instructions so that they may be more willing to try them.

**Cooperative Learning**

In Cooperative Learning, the teacher systematically organizes groups of three to six students to work and learn together. The students are often assigned roles in their group for completing the task. In this approach to learning, students depend on each other to learn academic material while enhancing their social skills. Since the students work in a team to accomplish the academic goal, it produces a cooperative environment that can have positive academic and social outcomes for children of all abilities. Cooperative reward structures are used as incentive to encourage the students to learn the material (Tateyama-Sniezek, 1990).

**Peer Tutoring**

Research on cooperative learning has indicated that peer tutoring, a type of cooperative learning, is effective at increasing student achievement at a various educational levels (Bargh & Schul, 1980; Greenwood, Carta, & Hall, 1988; Jenkins & Jenkins, 1985; Sherman, 1991; Slavin, 1991). For more than two decades, educators and
researchers have begun to take a closer look at peer tutoring as a cost- and time-efficient method of individualizing a child’s educational instruction. For example, peer tutoring has been used to improve children’s word recognition (Chiang, Thorpe, & Darch, 1980), spelling (Delquadri, Greenwood, Stretion, & Hall, 1983), math (Sharpley, Irvine, & Sharpley, 1983), and written capitalization (Campbell, Brady, & Linehan, 1991). Several types of peer-tutoring interventions exist, such as class wide peer tutoring, cross-age, reversal-role tutoring, and reciprocal peer tutoring (Gagnon & Conoley, 1997).

**History of Peer Tutoring**

It is likely that peer and cross-age tutoring have been part of human existence since hunter-gatherer times. As Jenkins and Jenkins (1987) write, "Tutorial instruction (parents teaching their offspring how to make a fire and to hunt and adolescents instructing younger siblings about edible berries and roots) was probably the first pedagogy among primitive societies" (p. 64). Wagner (1990), on the other hand, traces the historical origins of peer tutoring in Western civilization back to Greece in the first century A.D. and through Rome, Germany, other European locales, and finally America.

Interest in the peer-tutoring approach waned during most of the 19th century. It was not until the 1960s that American educators, searching for more effective strategies for improving the educational experiences of poor and minority children, revisited the concept of peer tutoring. Peer tutoring was seen as a low-tech and low-cost means of providing individualized, intensive instruction to academically needy pupils (Fuchs, Fuchs, Mathes, & Simmons, 1997).
**Cross-Age Peer Tutoring**

Cross-age tutoring occurs when an older student with relatively advanced skills is matched with a younger student deficient in some skill area or areas to deliver instruction, or older students with disabilities instruct younger children with similar disabilities. The role in this type is fixed, where the older student is the tutor and the younger student is the tutee. Cross-age tutoring is commonly used outside of the general classroom environment. The younger and older students benefit socially from the tutoring environment and learn the academic content (Maher, 1984).

Cross-age tutoring has shown significant success in a verity of curriculum areas. It has increased individualization for students (Cochran, Feng, Gartledge, & Hamilton, 1993; East, 1976), decreased the teacher’s workload which allowed for more individual help (Bloom, 1975), increased both tutor and tutee achievement (East, 1976; Ehly & Larsen, 1975-76), improved self-concept (Arkin & Shollar, 1982; East, 1976), fostered positive peer relationships (Blaney, Stephen, Rosenfiled, Aronson, & Sikes, 1977), increased locus of control and decreased truancy (Lazerson, Foster, Brown, & Hummel, 1988), and stimulated academic motivation (East, 1976; Moore, 1978).

In an investigation conducted by Maher (1982, 1984, and 1986), he replicated a study where he had high school students with behavioral disorders to tutor younger students with EMR. The results showed that students acting as cross-age tutors demonstrate positive changes in academic and social performance. One of the advantages to cross-age tutoring is that the tutors need less time to be trained because they bring with them skills and experience to the tutee. The disadvantage to cross-age tutoring is the lack of flexibility due to the need to coordinate schedules. The necessity of a set tutoring
schedule and dependence on external help makes cross-age tutoring a less flexible resource than other tutoring formats (Miller, Barbetta, & Heron, 1994).

**Reverse Role Tutoring**

Reverse-role tutoring is where the students with disabilities act as tutors to nondisabled students. This provides the special education tutor with a new experience of providing academic help to nondisabled student. The students’ teachers and parents often organize Reverse-Role Tutoring outside of the general classroom environment. The role of tutor for the older student includes: (a) tutoring and interpersonal skills, and (b) provision of often needed practice in an academic area. The younger student, who is not disabled, is provided with the opportunity to practice and obtain mastery with the academic material. Data from research in this area has demonstrated that both students can benefit interpersonally from the one-on-one interaction in a tutoring situation (Top & Osguthorpe, 1987).

In a study conducted by Top and Osguthorpe (1987) they measured the reading achievement of students with behavior disorder, students with learning disabilities, and nondisabled students, as well as self-esteem of the students with disabilities. Fourth-through sixth-grade behaviorally disordered and students with learning disabilities were paired with first graders to tutor during four weekly 15 to 20 minute sessions. The intervention was implemented for a total of 14 weeks. The results indicated improvement in reading for both tutors and tutees. The reading achievement scores were significantly higher for both tutors and tutees. Worth noting is that tutors with the lowest reading achievement scores made the most gains.
Class-Wide Peer Tutoring

Class-wide peer tutoring (CWPT) uses the structure of dyads created by the teacher which involves the entire class simultaneously participating in tutoring dyads. During each session students alternate between tutor and tutee roles. The pairing of reciprocal tutors can occur on a random basis, either in rank order to assure similar skill level, or with special considerations for students with behavior or academic problems. The unique feature is that all peer-tutoring groups are orchestrated within the classroom. The students are specifically instructed on how to tutor one another, so that each tutee has the benefit of one-on-one instruction and feedback for half of the time period. After the tutee completes the assigned tasks and earns points for their progress, the students switch roles. The point earnings of the dyads are posted in the classroom (Maheady, Sacca, & Harper, 1987, Maheady, Sacca, & Harper, 1988).

Typically CWPT sessions last 30 minutes, with 20 to 25 minutes used for instruction and the remaining time spent in testing, generalization activities, and transition to and from tutoring. During instruction, the tutee may be required to respond to tutor questions orally or in writing. As the tutee responds, the tutor provides feedback. Testing consists of a brief assessment of the skills practiced that tutoring session. Generalization activities involve application of the facts or items being taught (Miller, et al., 1994). Research on using CWPT with students with behavioral disorders, at risk-students, and low SES students showed positive gains in reading, writing, math, and social studies. In the other hand, CWPT can be used to teach higher-level skills, such as reading comprehension, and hypothesis testing.
A study conducted by Sideridis, Greenwood, and Utley (1998) investigated class-wide peer tutoring (CWPT) as a means of enhancing spelling performance and social interaction among students with mild disabilities and typical peers in inclusive instructional settings. Participants were three students with mild disabilities and three typical peers enrolled full-time in a general education sixth-grade classroom. The findings indicated that CWPT was effective in increasing the social interactions, reducing the inappropriate behaviors, and enhancing the spelling achievement of the disabled students and their typical peers. Systematic observations of interactions among the mildly disabled children and the mildly disabled children and their typical peers revealed that children with mild disabilities interacted positively in both the tutor and tutee roles. Furthermore, during the implementation of the CWPT, the responsiveness levels of the children with mild disabilities improved, although the improvement did not reach statistical significance across all comparisons. The disadvantages of CWPT include the amount of teacher time needed to plan and prepare the program, train students as tutors, and coordination program (Miller, et al., 1994).

Reciprocal Peer Tutoring

Reciprocal peer tutoring is another type of cooperative learning which capitalizes on the benefit students receives from preparing to tutor one another. It is a peer tutoring process developed by Fantuzzo and his colleagues (Pigott, Fantuzzo, & Clement, 1986), enables each student to play the role of tutor and tutee. Students engaged in reciprocal peer tutoring provide instruction, evaluation, and reinforcement to one another, thus creating mutual assistance and social support among students’ participants (Fantuzzo, King, Heller, 1992; Fantuzzo, Riggio, Connelly, & Dimeff, 1989; Pigott, et al., 1986).
This intervention comes in response to the increased need to find out effective strategies to help children in high-risk environments feel academically competent and make achievement gains.

Brady (1997) conducted a study using reciprocal peer tutoring where eight preschool children were taught to take turns tutoring each other on academic skills. Four children had an identified disability and were paired with other children who did not have disabilities. The researcher had taken measures on the acquisition of tutoring components, targeted academic skills, and social interaction patterns. Social interactions were assessed between students in each dyad before and after peer tutoring. A multiple baseline across students design was used to evaluate the effect of peer tutoring on social interactions. The findings of this study revealed that all subjects’ academic responses increased after peer tutoring, while four students increased their social interaction times. The remaining four students increased social interaction time only after implementing a supplementary direct intervention.

**Benefits of Peer Tutoring**

There are many benefits of using students as tutors. Not only it is beneficial to the tutors and tutees, but also, there are several benefits to teachers as well.

**Benefits to teachers.** Teachers can benefit from using peer tutoring in their classrooms in many ways. Class-wide peer tutoring for example provides an individualized instruction simultaneously regardless of the group size (Miller, et al., 1994; Enright & Axelrod, 1995), which will save a great amount of valuable classroom time. Skinner, Fletcher, and Henington, (1996) suggest that because peer tutoring incorporates fast pacing, timed trials, and reinforcement of high rates of correct
responding, most likely peer tutoring will improve learning rates without rising instruction time. Another benefit to teachers is that peer tutoring can provide the needed individualized instruction for some students without having the teacher to worry about other students’ instructional time. Therefore, peer tutoring allows teachers to simultaneously implement lessons at different skill levels to address a greater range of learning needs in one classroom (Miller et al., 1994, Enright & Axelrod, 1995). Moreover, peer tutoring considered an economical and low-tech strategy. It requires little materials development and only minimal copying at the beginning of the school year. Although peer tutoring can be time consuming at the beginning, most peer tutoring programs required minimal teacher time and effort once it started. Peer tutoring sessions may occur only a few times per week, for approximately 30 minutes per session and can work well as a supplement to any instructional approach the teacher uses. For example, sight word peer tutoring can be used to supplement the reading program by individualizing drill of sight word vocabulary (Heron, Heward, Cooke, & Hill, 1983). There is no one way to implement peer tutoring, as a teaching method rather than a curricula, peer tutoring can be modified to accommodate changes in the academic needs of students and the physical environment in the classroom (Enright & Axelrod, 1995).

A great benefit for regular education teacher is that peer tutoring can be very helpful in mainstreaming students with disabilities in the regular education settings among large-group academic instruction (Cooke, Heron, Heward, & Test, 1982). Finally, several studies on peer tutoring have demonstrated increased in on-task behavior and a reduction in the disruptive behaviors in the classroom. (Polirstok & Greer, 1986; Maher, 1982, 1984, 1986).
The literature revealed that peer tutoring program can benefit learners at various skill levels. In a study conducted by Fuchs, Fuchs, Mathes, and Simmons (1997) where three students representing three learner types were selected from 20 classrooms in which a peer tutoring program for reading comprehension had been implemented for 15 weeks. Their reading progress was compared to that of three students representing the same three learner types who were selected from 20 classrooms in which there was no peer tutoring program. The three learner types were low achieving students with disabilities, low-achieving students without disabilities and average-achieving pupils. Participants in the study were in grades 2 through 6. Student pairings and reading activities were tailored to address the variation in skill across students. Teachers matched individual students from a group ranked highly in reading performance with students from a bottom ranked group. In addition, the tutor-tutee pairs read from different texts that matched the instructional level of the weaker reader in the pair. The authors concluded from their findings that regardless of the skill level of the learner, students in peer tutoring classrooms demonstrated greater reading progress. Thus, peer tutoring was successful across the range of abilities among students in the study and as a result the authors conclude that the peer tutoring instructional technique allows the classroom to be more responsive to the skills diversity.

In another study conducted by Greenwood, Dinwiddie, Bailey, Carta, Dorsey, Kohler, Nelson, Rotholz, and Schulte, (1987), the researchers examined the effectiveness of peer tutoring for spelling words across high and low spelling ability student groups as determined by a pretest. They compared the effects of class-wide peer tutoring to teacher instruction for a group of inner-city students during their first- and second-grade school
years. Students were randomly paired with partners each week. Their findings indicate that though substantial improvements were made by students over pretest levels under both peer-tutoring and teacher instruction conditions, a significant additional improvement was made during class-wide peer tutoring. These improvements were made by both high and low student groups and were consistent across classes, individuals, and years.

Benefits to tutees. Students can benefit both academically and socially from involvement in peer tutoring. The findings of several studies that examined teacher versus peer-mediated instruction revealed greater academic gains in peer tutoring conditions versus teacher based instruction (Greenwood, Terry, Utley, Montagna, & Walker, 1993; Greenwood, et al., 1984). Peer tutoring can be particularly beneficial for students who are at greatest risk of academic failure, dropping out of school, overrepresentation in special education, or/and those students from low-SES (Greenwood, 1991; Greenwood & Delquadri, 1995). Research on Peer tutoring showed increasing on-task behavior (Heward, Heron, Ellis, & Cooke, 1986), increasing in social interactions (Franca, kerr, Reitz, & Lambert, 1990; Maheady & Sainato, 1985), and reducing disruptive behavior (Folio & Norman, 1981).

An important by-product of the one-on-one pairing and the reciprocal tutor-tutee roles in peer tutoring is that opportunities to respond for each student are increased dramatically. Peer tutoring is an effective instructional method that is, it is highly structured, provide multiple opportunities for students to respond, and provide praise for correct responses and immediate corrective feedback for incorrect responses.
To demonstrate the effects of peer tutoring on improving learning rates, Delquadri, Greenwood, Stretton, and Hall, (1983) implemented a spelling tutoring game which consisted of several components for an entire class of 24 children attending an inner-city, low-income, minority neighborhood school. The spelling tutoring game implemented in this study included several components for the purpose of increasing opportunities to respond for all students. These included: a) social and token reinforcement, b) team competition, c) distributed practice, and d) an error correction procedure. Tutor pairs worked together and carried out the procedures for reinforcing correct responses and completing the error correction procedure. As part of this procedure, tutors would say a word from the weekly list and the tutee wrote the word on his/her paper. The tutee subsequently spelled the word orally to the tutor as the word was written on his/her paper. Reinforcement for correct spelling was delivered when the word was written and spelled correctly. Correct responses earned the tutee two points per correct word. In response to an error, the tutor would point to the incorrectly spelled word, pronounce it and spell the word orally to the tutee. The tutee was then required to write it correctly three times before the next word could be given. When the correction had been carried out successfully, the tutee was rewarded with one point and then proceeded to the next word on the list. The results of the study indicated that the tutoring game dramatically decreased the weekly error scores by both average peers and low functioning children. The spelling game was a successful supplement to the teachers spelling program in terms of increasing correct words on weekly spelling tests.

*Benefits to tutors.* Students who play the role of tutors also improve their academic and social skills. For example, in a study conducted by Polirstok and Greer,
(1986), the researchers replicated the effects of a reading peer tutoring program on the behavior of tutors as well as the tutees. In this study, data were collected in the tutoring setting on a) tutors’ use of contingent approval and disapproval contingent on tutee behaviors, b) tutees’ attention to their tutors’ approval, and c) tutees’ daily written responses to questions about assigned readings. In the non-tutoring settings, data were collected on a) tutors’ on-task behavior and written reading comprehension responses, and b) tutors’ on-task behavior in the math class. The findings of this study revealed that tutors, academically at-risk high school students, and tutees, who had been receiving remedial reading services, increased academic behaviors and skills. Most interesting was the finding that the tutors increased their levels of on-task behavior in the non-tutoring settings of reading and math. The authors attribute these findings to the token component (e.g. token reward for tutor approval) in the tutoring package which was used to establish high quality tutoring and improved tutee-performance.

Heron, Heward, Cooke, and Hill, (1983) assessed the effects of peer tutoring on tutor outcomes as well. They evaluated the effects of a classwide peer tutoring system on the acquisition of sight words for a group of 28 first-grade students. Students who participated in the study represented a wide range of academic and social skills. One of the students had Down’s Syndrome and one was learning disabled. Both received individualized instruction in a resource room. Six other children in the class were receiving supplemental instruction by a Title I reading specialist. Fourteen students who scored highest on the pretest were assigned to be tutors and the remaining 14 students participated as tutees. Tutors and tutees were exposed to three 30-minute training sessions to teach appropriate tutor and tutee behaviors. Peer tutoring sessions lasted
between 25 and 30 minutes per session. Data was collected on the tutors’ completion of the basic peer tutoring steps, use of prompting and plotting of results. Results of this study indicate that peers served as effective tutors and both tutors and tutees benefited from the program. At a posttest measure taken 5 months after the start of the study, both tutees and tutors retained a substantial percentage of the first-batch words (first 112 words) and increased their recognition ability of second-batch words (next 103 words).

Research also revealed more beneficial outcomes for students who served as tutors. In a study conducted by Jenkins and Jenkins (1981), the researchers found that tutors showed improvement in their self-concept, attitudes toward school, and enhanced racial relations.

Summary

Urban elementary schools are growing larger, serving increasingly diverse student populations and needs, and receiving more referrals to special education programs and services (Smith, 2000). Children in these schools fall significantly below their peers on all measures of academic achievement, including grades, standardized test scores, rates of graduation, and percentages entering higher education. Children in elementary urban schools in general and African American students in particular, are at high risk for reading failure. As measured by the National Assessment of Educational Progress (NAEP), African American students are much more likely to read below basic levels than their majority.

Sight word recognition plays an important role in reading fluency, comprehension and in the development of word identification skills for reading new words (Moyer, 1982; Scarborough, 2001). There is agreement among researchers that word recognition is a
forerunner to reading comprehension, and therefore, when a child has difficulty in both word recognition and comprehension, improving word recognition should be our priority (Spear-Swerling & Sternberg, 1994). Smith (1982) describes whole word identification as one instructional method for word recognition.

Peer tutoring has been demonstrated to be a highly effective method for instruction which uses whole word identification for sight word acquisition (Heron, et al., 1983). As an instructional strategy, it offers benefits to both teacher and students (Miller, et al., 1994). First grade students are developmentally capable of being effective peer tutors (Wood, Wood, Ainsworth, & O’Malley, 1995).

Although there are a number of studies that investigated the effects of peer tutoring on the acquisition of high frequency sight words, a few studies examined the effects of peer tutoring on the maintenance of sight words that have been correctly recognized. The current study will extend the findings of other research on acquisition and maintenance of high frequency sight words of urban at-risk students. In addition, this study probably will be among the very few, if any, to investigate the effects of peer tutoring on the generalization of high frequency sight words that have been correctly recognized.
CHAPTER 3

METHOD

Participants

There were twelve participants in the study. All of the participants attended an urban elementary school and were designated as academically at-risk by their teachers. There were six first graders and six second graders. Two female second grade students withdrew from the study shortly after all the students started the intervention. Thus, ten students participated in the study during the intervention. One first grade student moved out of the school district after participating in the study for 8 weeks. All the students were typically developing children. None of the participants had been designated as having a disability. Nine participants were African Americans and one Caucasian. Each student was identified by his or her teacher as a low achiever and at risk of school failure. There were six first graders three girls and three boys, and four boys from second grade (see Table 1). Parental consent for students participating in the study was obtained prior to the study (see Appendices A & B). In addition, teachers’ consent for participation in the study was also obtained prior to the study (see Appendix C & D).
Setting

The study was conducted in an urban public elementary school located in a metropolitan area in central Ohio. The school has an enrollment of 193 students, grades preschool through fifth, drawing from a mostly African American population 82% (N=159) with the remaining students being 13% (N=25) Caucasian and 5% (N=9) Asian or Latino. All students at the school receive free or reduced lunch. The study was conducted in an unoccupied space in the school library.

The study sessions took place three times a week on Mondays, Wednesdays, and Thursdays. Sessions were conducted with first grade participants from 9:00 to 9:30 A.M. Sessions were conducted with second grade participants from 1:00 to 1:30 P.M. The 10 students were pulled out of their classrooms for research sessions. These research times were chosen by the first and second grade teachers as the best times for the students to be pulled out because no whole-class academic instruction took place at that time. On occasion, the peer tutoring session day and time were changed due to class or school scheduling conflicts (e.g. school assemblies).
<table>
<thead>
<tr>
<th>Student</th>
<th>Grade</th>
<th>Gender</th>
<th>Race</th>
<th>¹Age</th>
<th>²Grade Level Reading Achievement</th>
</tr>
</thead>
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<tr>
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<td>First</td>
<td>Male</td>
<td>African-American</td>
<td>6/9</td>
<td>K</td>
</tr>
<tr>
<td>2</td>
<td>First</td>
<td>Male</td>
<td>African-American</td>
<td>6/4</td>
<td>K</td>
</tr>
<tr>
<td>3</td>
<td>First</td>
<td>Female</td>
<td>African-American</td>
<td>6/9</td>
<td>K</td>
</tr>
<tr>
<td>4</td>
<td>First</td>
<td>Female</td>
<td>African-American</td>
<td>6/10</td>
<td>K</td>
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<tr>
<td>5</td>
<td>First</td>
<td>Male</td>
<td>African-American</td>
<td>6/10</td>
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<tr>
<td>6</td>
<td>First</td>
<td>Female</td>
<td>African-American</td>
<td>6/9</td>
<td>K</td>
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<tr>
<td>7</td>
<td>Second</td>
<td>Male</td>
<td>African-American</td>
<td>7/6</td>
<td>K</td>
</tr>
<tr>
<td>8</td>
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<td>Male</td>
<td>African-American</td>
<td>8/8</td>
<td>1st</td>
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<tr>
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<td>Second</td>
<td>Male</td>
<td>African-American</td>
<td>7/7</td>
<td>K</td>
</tr>
<tr>
<td>10</td>
<td>Second</td>
<td>Male</td>
<td>Caucasian</td>
<td>7/10</td>
<td>1st</td>
</tr>
</tbody>
</table>

¹ Student age at the beginning of the study.

² Reading achievement scores were obtained by the teachers using Developmental Reading Assessment (DRA) at the beginning of the second semester of the school year. It is a reading recovery assessment tool used by elementary teachers in the school district.

Table 3.1: Information for each participant, including grade, gender, race, age, and grade level reading achievement scores.
Experimenter and Research Assistants

The experimenter is a third year doctoral student at The Ohio State University, in Special Education. She served as the primary observer during the study. She has earned a Bachelor degree in Psychology from The University of Jordan, Amman, Jordan and a Masters degree in Special Education from The University of Jordan, Amman, Jordan. The secondary observer is a first year doctoral students at The Ohio State University, in Special Education. She has earned a Masters degree in Special Education from University of Illinois at Urbana-Champaign, Illinois.

Definition and Measurement of the Dependent Variables

Four dependent variables were measured in this study: (1) number of sight words learned, (2) maintenance of sight words across time, (3) generalization of the sight words read in context (4) student, teachers and parents’ satisfaction with the intervention package was also assessed in this study.

Number of Sight Words Learned

During this study students were assessed on the number of words they learned. A word was considered learned if the student could not correctly read the word during the pretest but could correctly read it after instruction. During baseline the “teacher five weekly words” were selected from a list of high frequency sight words the teachers used throughout the year. This list is part of the Curriculum Reading Guide of Columbus Public Schools. These five words were selected, introduced and instructed to the whole class (i.e., both study participants and non participants) by the classroom teachers. The teachers in the first and second grades selected the weekly five words utilizing their professional knowledge and according to the following criteria: frequency of use,
difficulty, relevance to the curriculum. During intervention the students received
instruction on the teacher five weekly words and five “unknown” words chosen by the
experimenter. The second set of weekly words consisted of five “unknown words”. For
the first graders, the experimenter identified the five weekly unknown words from an
individualized pool of sight words that were counted as incorrect during the pretest
assessment. First graders were pretested on sight word lists of first and second grades.
Similarly, for the second graders the experimenter identified the weekly five unknown
words from an individualized pool of sight words that were counted as incorrect during
the pretest assessment. Second graders were pretested on sight word lists of second, third,
and fourth grades.

During baseline on Fridays the experimenter or the research assistant conducted a
pretest on the teacher’s five weekly words that were planned to be introduced and taught
to the students the following week. During intervention and at the beginning of each
week immediately before the peer tutoring session, the researcher and/or the research
assistant tested each student on the teacher’s five weekly words in order to document if
the student could already read one or more of the words. Five unknown words were also
identified for each student for each week during intervention. Each student was tested on
a group of words from same grade level and the next higher grade level(s) until the five
unknown words were identified for that week. A word was considered unknown if a
student was not able to correctly read the word within three seconds after it was visually
presented during both assessments. A word was considered as known when the student
read it correctly within three seconds during either one of the two pre-assessments (i.e.,
the first pretest was before the study began, the second was the weekly pretest). Learning
of weekly high frequency sight words was assessed at the end of each peer tutoring session by the experimenter and the research assistant. Word learned was defined as the student having read the word correctly within three seconds after visual presentation of the word (i.e., the word printed in black ink on an index card).

**Maintenance of High-Frequency Sight Words**

Cooper, Heron, and Heward (1987) defined maintenance as “the extent to which the learner continues to perform the target behavior after a portion or all of the intervention is terminated” (p. 558). Maintenance probes started at the end of the second week of the beginning of the study and continued to occur once every week to measure how many words read correctly during the previous weekly tests the student could still correctly read one week later. The week immediately following the week the words were initially introduced, a maintenance probe was conducted. A maintenance probe was conducted every Thursday beginning with the second week of the study and ending one week after the last intervention week. The experimenter and/or research assistant displayed 3x5 index cards upon which one of that week’s words was written in black ink. Words read correctly during the previous week tests were used (i.e., that is previously known words and learned words). Students were asked to read the word out loud. A word was considered correct, when the student read it correctly within three seconds of presentation. During intervention maintenance probes were conducted immediately after the peer tutoring program intervention was concluded using the previous week’s words.

**Generalization of High-Frequency Sight Words**

Generalization was assessed using sentences that were created by the experimenter from the sight words learned, the students were asked to read the sentences
out loud. Each sentence was created from one sight word that the student had previously read correctly (see Appendices M & P). The student did not have to read the whole sentence correctly for the word to be considered generalized, the word was considered generalized if the student read the targeted word correctly. Generality probes started at the end of the first week of the beginning of the study and continued to occur once every week on Thursdays throughout the study to measure how many words previously read correctly the student could read correctly in context. The generality probes occurred immediately after the peer tutoring session and maintenance tests were concluded.

Student, Teacher, and Parent Opinions

Students’ opinions of peer tutoring were obtained from their responses on an exit interview administered orally following the last intervention session of the study (see Appendix E). The interview questions were read to the students by an independent observer other than the experimenter. The students’ classroom teachers also expressed their opinions by filling out the questionnaire shown in (see Appendix F). The parents’ as well expressed their opinions by filling out the questionnaire shown in (see Appendix G), which was sent out to them with their children. For the parents who did not send the questionnaire back, the parent liaison teacher was asked to call the parents and interview them over the phone.

Interobserver Agreement (IOA) for Dependent Variables

The IOA for sight words learned, generalized, and maintained was measured during 30% of the sessions. The experimenter independently documented the number of words learned during the assessment by using a recording form and compared results to an equivalent record form which was simultaneously completed by the research assistant.
who served as a second observer. The same procedure was applied during the word
generalization and maintenance assessments. Percentage of agreement was computed as
the number of agreements divided by the number of agreements and disagreements
multiplied by 100.

Interobserver agreement was also collected for the tutor procedural reliability
checklist. Both the experimenter and the research assistant had a copy of the procedural
reliability checklist and observed the selected student for the entire peer tutoring practice
session in which the student acted as a tutor. Then the same tutor was observed again
during the testing portion of the peer tutoring session. The experimenter and the research
assistant sat away from each other, but were able to see the student clearly.

The assessments of sight words learned, generalized, and maintained and
procedural checklist for tutor’s data, were compared and interobserver agreement was
calculated separately using the following formula.

\[
\text{Agreements} \quad \frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100 = \text{IOA}\
\]

\[
\text{Interobserver Agreement} (\text{IOA})
\]

\[
\text{Tutor Behaviors}
\]

A procedural checklist was developed to ensure the procedures during
intervention are implemented as planned (see Appendix H). The evaluation was
carried out to determine whether the tutors learned the tutoring behaviors taught during
training sessions. Tutor behaviors include: (a) retrieving folders, (b) switching folders
with partners, (c) participating in Tutor Huddle (i.e., sitting with Tutor Huddle members
members
and taking turns reading the words), (d) performing practice session (i.e., displaying flashcards, reading, giving praise and corrective feedback), (e) performing testing phase (i.e., providing no prompts, placing cards on correct areas, praising at the end), (f) marking partner’s flashcards (i.e., O = correct and X = incorrect), (g) charting, and (h) returning folders. Tutors were selected for observation prior to the sessions. Each tutor was observed at least once. Approximately 30% of the sessions were observed and checked for treatment integrity for tutors. The treatment integrity on tutor behavior was measured by dividing the number of items carried out correctly by the total number of possible items and then multiplying by 100.

Experimenter Behaviors

A procedural checklist was developed to ensure the procedures during baseline phase are implemented as planned (see Appendix K). The evaluation was conducted to determine whether the experimenter is consistent in testing the students in the same way. The experimenter’s behavior was rated by the research assistant. The treatment integrity on experimenter’s behavior was measured by dividing the number of items carried out correctly by the total number of items and then multiplying by 100.

Materials

High Frequency Sight Words

One list of weekly high frequency sight words sets was selected by the teacher and instructed to the whole class as part of the language arts instruction. These words were selected from a list of high frequency sight words list the teachers use through out the year. This list is part of the Curriculum Reading Guide of Columbus Public Schools. The teachers provided the experimenter with the same words that were taught in the
classrooms as part of the instructional material for the peer tutoring sessions. In this study, peer tutoring supplemented the more traditional language arts instruction provided by the teachers. The second list of weekly high frequency sight words sets was obtained by the experimenter from the teachers of second, third, and fourth grades of the same school. These lists also are part of the Curriculum Reading Guide of Columbus Public Schools (see Appendix O).

Generality Probes Sentences

The experimenter created sentences according to students’ grade levels. Each sentence included one of the sight words previously instructed to the student and read correctly on the weekly tests by the student (See Appendices M & P).

High Frequency Words Flashcards

Plain 3” x 5” index cards were used for high frequency word flashcards. A word was printed in black ink in large bold lowercase letters on the front side of the card. On the back side, a 2”-by-5” matrix for recording correct and incorrect attempts to read the word was displayed (see Appendix J).

Slosson Oral Reading Test (SORT-R)

A standardized oral reading test was used by the experimenter and the research assistant to assess students’ level or oral word recognition pre- and post-intervention.

Teacher Sight Word Lists

Sight words were selected using first and second grade teachers high frequency sight word lists. In addition, other high frequency sight word lists were selected from third and fourth grade high frequency sight words used by the teachers in the school.
Parent Consent Letters

One letter was written for the parent/guardians of the students involved in the study. The letters were written on university letterhead with the appropriate signature (see Appendix A).

Teacher Recruitment Letters

One letter was written for the first and second grade teachers of the students involved in the study. The letters were written on university letterhead with the appropriate signature (see Appendix D).

Participant Satisfaction Questionnaires

A questionnaire was created consisted of nine questions used by the research assistant to interview the students and write down their responses (see Appendix E).

Teacher Satisfaction Questionnaires

A questionnaire was created consisted of ten questions. Teachers were asked to complete the questionnaire (see Appendix E).

Parent Satisfaction Questionnaires

A questionnaire was created consisted of eight statements. The parents were directed to indicate the extent to which they agree or disagree with each statement by circling one of five responses (see Appendix G).

Procedural Reliability Checklists

Two procedural reliability checklists were created, one for the tutors and one for the experimenter. Each form had a list of behaviors to be observed. The observer would check off whether or not a particular behavior was observed (see Appendix H & I)
Data Collection Forms

Data collection forms were created for words learning, maintenance, and generality probes for the experimenter and research assistant to record correct and incorrect responses (See Appendix N).

Folders

Manila office file folders (8 1/2” x 11”) were used for the peer tutoring folders. Each folder contained the name of the tutor on the tab, a progress row chart resembling a path with 50 boxes on the inside left of the folder, and three envelop pockets on the inside right of the folder. One pocket labeled with the word “GO” in a green circle, one pocket with the word “STOP” in a red hexagon, and the third pocket labeled “STAR” (see Appendix L). A 3” x 5” colored index card with the student’s name was placed inside the Star Card pocket and served as star card. Each star card contained two, 10 square grids. Throughout each peer tutoring session, the experimenter marked the grids on the students’ star cards with marker stamps to reward students for correctly carrying out the procedures and for staying on-task. On the back panel of the folder there is “smiley face” and “X” upon which the tutor placed correct (smile) and incorrect (X) responses during the testing phase (see Appendix M).

Timer

A standard digital timer was used to time sections of each peer tutoring session.

Pencils and Pens

Pencils and pens were needed for the experimenter, research assistant, and students to write down information.
Crayons

Color Splash crayons were used to color in the squares on the students’ progress charts.

Experimental Design

A multiple baseline design across students (Baer, Wolf, & Risely, 1986) was used to analyze the effects of intervention on the dependent variables. Multiple baseline is an effective design for evaluating the effects of intervention on target skills in which the withdrawal of the effective intervention is not required to demonstrate experimental control (Cooper et al., 1987). In this study, after the students learned to read high frequency sight words, their reading behaviors are unlikely to return to baseline level after training is concluded.

Procedures

Pretest

Before the study began two pretests were used to determine the number of high frequency sight words in the student’s repertoire. The two tests are:

Slosson Oral Reading Test (SORT-R)

SORT-R (1990) is a standardized oral reading test designed to assess a subject’s level of oral word recognition, word calling or reading level. It is a quick screening test to determine a student’s reading level. SORT-R contains 200 words arranged in ascending order of difficulty in groups of 20 words. These groups approximate grade reading levels. Thus group 1 is at approximately the first grade level; group 4 is at approximately the fourth grade level. The same pattern continues throughout the word list. For all participants the experimenter started with group 1 list because all participants’ reading
level was either at first grade or Kindergarten level. The experimenter stopped when the student could not read any of the 20 words correctly. According to SORT-R manual, the word considered correct if it read correctly within five seconds. Participants were praised for their efforts and not for accuracy. Each student had the sight words listed vertically in front of him or her which is covered by a manila folder with a cutout to move to each word. The cutout blocked out other words to assist the student to attend only to the word showing in the cutout.

*The Teachers’ Sight Words Lists*

These lists are obtained by the teachers from the Curriculum Reading Guide of Columbus Public Schools for first and second grades (see Appendix O). These lists were used as a pretest to determine the number of high frequency sight words in the student’s repertoire and to identify initially the unknown words that were added later to an individualized pool of unknown words to be instructed during the intervention. The lists of words included the words that had been instructed to the students earlier in the school year and the words that were planned to be instructed to the students throughout the school year.

Pretests data was used to pair children for peer tutoring according to ability to recognize sight words. The experimenter or the research assistant administered the pretests to each first and second grade participant from the target classrooms individually prior to the beginning of the study. Each student had the sight words listed on paper in front of him or her which is covered by a manila folder with a cutout to move to each word. The cutout blocked out other words to assist the student to attend only to the word showing in the cutout. The experimenter checked off sight words that are pronounced
correctly by the student on a separate sheet. Words had to be read within three seconds to be considered as read correctly. There was no stopping point for the teachers’ word lists; each student was tested on the complete list of words. Throughout the testing process, participants were praised for their efforts and not for accuracy.

Baseline

During the baseline condition, the participants remained in their classrooms as they usually do and continue to receive extra instruction from the safety-net teacher (i.e., Title 1 teacher). All 10 students that participated in the study received instruction from the safety-net teacher at the school starting with the beginning of the school year. This instruction took place three times a week for half an hour each time. The safety-net teacher works with first and second grade students who need extra help in reading. She typically works in a one-on-one or small group setting with no more than two students in the group. She usually reviewed the five sight words assigned for the week. Then she made worksheets for students to complete using the sight words. The activities change from one week to another. She designed games that the students can play and utilizing the sight words. The students made up sentences using the sight words and wrote them down. Each student read a book at his/her ability level. They wrote about the book that they read in their journal. The students were encouraged to make sentences using the words and write complete sentences.

The teachers of the first- and second-graders were directed to teach high frequency sight words as they normally do. All first and second grade students in the classrooms received language arts instruction once daily in the mornings throughout the week. Teachers usually started with introducing the new words by saying each word then
spelling each word aloud. The teachers would lead the students in spelling the words together chorally; teachers wrote the words on the board and said them in unison with the students. The teachers had the students practice printing the words and placed the students’ lists on the word wall. The teachers had two word walls, one made by the students and one made by the teachers. The teachers made the word wall by selecting five words each week and adding them to an existing list on the wall in the room. The words were written with a thick black marker on heavy paper, and then cut out around the outline of the letters so that each word had its own unique shape. Sometimes, teachers used several different colors of paper as another tool for helping students distinguish among the word wall words. The word wall had sections for each letter of the alphabet, and the words are placed to be visible to all students, so it took up a considerable amount of space in the classroom.

For the students in second grade, the teacher had the students to count and identify number of vowels and consonants in each word and she conducted activities with the students where they learned to find words that rhyme with the words that were being taught that week. During the week, students in both grades practiced these words on response cards and by making fold books. Fold books were mini-books that were created by the students with the help and guidance of the teachers. They were created by folding rectangular sheet of paper in half two times. For first graders, teacher writes each word on the board as she spells it aloud along with the students. Then she asked the students to write each word several times on one side of the fold book. By the end of the week each student had a fold book with the five words printed in his/her own writing. Similarly, the second graders also created their own fold books but instead of writing the words alone
The teacher helped the students to write sentences created from the five sight words taught that week.

Teachers in both grades used poem books made from the weekly sight words to emphasize the words and provide additional practice. For example, the teachers would teach the students a poem then used it to highlight a particular sight word or word chunk. Teacher along with the students read the poem over and over. When the children were familiar with the words, teachers provided each student with a copy from the poem. The teacher would say a word and ask the students to identify the word in the poem and circle it. Teachers used several poems for many different words at various points in the year. Teachers assigned homework having the students practice the words by using them in sentences and the students usually shared their sentences the following day with the whole class. Finally, teachers had the students to read a text and circle the words as they find them in their reading. At the end of each week, on Fridays, the teacher had a weekly test using that week’s words. The teacher would say the word to the class and direct the students to independently write the word on his or her paper, the teacher systematically stated each word until all that week’s words had been dictated. The students were then directed to pass in their papers to the teacher.

The experimenter and/or the research assistant collected baseline data by assessing each student’s learning of the weekly words presented and instructed that week, three times a week. The experimenter and/or the research assistant pulled each student individually out of the classroom and conducted the assessments at the same time and place designated for the study three times a week. Each student was assessed on his or her ability to recognize the five sight words for that week. The experimenter and/or the
research assistant displayed 3x5 index cards, one at a time, upon which one of the words was written in black ink. Students were asked to read the word out loud. To be considered correct, words had to be read correctly within three seconds of presentation. The experimenter and/or research assistant also conducted maintenance and generalization probes during baseline once every week after the words were instructed. Maintenance probes started at the end of the second week of the beginning of the study and continued to occur once every week to measure how many words read correctly during the previous weekly tests the student could still correctly read one week later following the same procedures for assessing words recognition. To assess generalization each student was presented with 3x5 index cards upon which a sentence was written that contained a sight words that was previously read correctly. The sentences were written in black ink on white cards. Each sentence included one sight word. The student was asked to read out loud the sentence with the targeted sight word. For the target words to be considered generalized the student had to read it correctly. Reading the whole sentence correctly is not required for the word to be considered generalized.

During baseline on Fridays the experimenter or the research assistant conducted a pretest on the teacher’s five weekly words that were planned to be introduced and taught to the students the following week. However, all the participants did not take pretest on the initial week of baseline. This pretest came to assess students’ ability to recognize any of the words that will be instructed and document this information to evaluate how many new word the students learned from teacher’s instruction. The same procedures that were used to assess student’s recognition of the weekly words were used here.
During baseline data collection, students were given tangible rewards (e.g. candy) on intermittent basis to reinforce them for their efforts during assessment times.

*Tutor Training*

The tutor training was conducted prior to the first day of the peer tutoring session. This phase of the study consisted of one orientation session and three training sessions, which lasts approximately 30 minutes each and held during the time period set aside for peer tutoring. The experimenter and the research assistant served as the trainers. The guidelines of tutor training were obtained from peer tutoring manual (Cooke, Heron, & Heward, 1983). During orientation session, students were presented with an overview of peer tutoring and were familiarized with the parts of their peer tutoring folders.

Subsequent tutoring training sessions addressed the following topics: tutor huddle, practice, prompting and testing. Training sessions consisted of four training components: (a) explaining the skill, (b) modeling the skill, (c) role playing with the group, (d) practice as a group. Each component is detailed as below.

(a) Explain the skill: The experimenter and the research assistant explained and showed examples and non-examples of the skills (e.g., how to present the flashcards, how to provide prompts when the student does not know the answer). For example, the experimenter (tutor) presented the word by holding up an index card with the word written on it at the eye level of the research assistant (tutee). The experimenter said “What word?” and the research assistant read it correctly the first time and the experimenter said “Good job”. Then the research assistant (tutee) read the next word incorrectly and the experimenter said “Try again”, the research assistant says it
incorrectly for the second time and the experimenter said “Say ….” And wait for the research assistant to repeat it and then the experimenter said “Good job”.

The experimenter and the research assistant explained to the participants the tutor huddle. The experimenter and the research assistant exchanged their folders then each one removed the cards from the “GO” pocket and took turn reading the words. When the word is read correctly the other partner said “yes”, when it is read incorrectly the other partner told the correct word until all the words are read.

(b) Modeling the skill: The experimenter and the research assistant modeled each specific skill in front of the whole group. For example, when training the students to prompt, the experimenter took the role of tutor and showed a flashcard to a student while the whole group attention to the demonstration. When the student made an error, the experimenter showed the group how to prompt by saying “Try again.” When the student makes a second error, the experimenter said “say ….” And asked the student to repeat the word and then provide praise. The experimenter also showed the group how to prompt when the students does not answer within 3 seconds by saying “Try it”, when the tutor got no answer the experimenter said the word and ask the student to repeat it and provide praise.

(c) Role-play with the group: at the beginning the experimenter and the research assistant each sat with a group of student to practice the tutor huddle with them. The students were given cards to read and the rest of the group delivered the appropriate feedback with the participation of the experimenter and the research assistant. Next, the experimenter had the group to serve as her tutor to provide students opportunities to practice the skills (e.g., prompting, providing corrective feedback, and deliver praising
statements). Each student had the opportunity to practice individually with the experimenter. The experimenter made both correct responses and errors so that the group had a full range of practices.

(d) Practice as a group: Finally, the students paired with each other then they exchanged their folders and divided into two groups to practice the tutor huddle. The experimenter and the research assistant circulate the two groups to help them reading some of the words that they cannot read. Next each tutor-student pair practiced while the experimenter and the research assistant circulated and monitored their demonstration of skills. The students had their star cards out while the experimenter and the research assistant saw if they were on-task and performing the trained behaviors satisfactorily, the experimenter and/or the research assistant stamped on the student’s star card and provided verbal praise. A student who accumulates 20 stars received a tangible reinforcement.

Due to the experimental design of the study (multiple baseline design), all the students did not start the peer tutoring sessions together at the same time. The training was conducted in three separate occasions for a different group of students each time. The tutor training for the first two dyads of students (Two first graders and two second graders) was conducted immediately before their initial peer tutoring session begin. The second tutor training for the second two dyads of students took place immediately before their initial peer tutoring session. Similarly, the third and last two dyads of students were trained, again, immediately before their initial peer tutoring session.

The two second grade students that withdraw from the study were part of the training of the first and second group.
Addition of Five Unknown Words

Upon the beginning of each peer tutoring sessions, a set of five unknown words was added to “the teacher five weekly words” that the students were supplementary practicing during peer tutoring sessions. The five unknown words were identified from an individualized pool of unknown words. This pool of unknown words consisted of the words that were counted as incorrect during the pretests on the teacher’s word lists (i.e., first graders were pretested on their teacher’s word list; second graders were pretested on their teacher’s word list). In addition and before the study started, the experimenter and research assistant pretested each student on words from the next grade level. That is, first graders were pretested on second grade sight words and second graders were pretested on third and fourth grade sight words which were obtained from the teachers in the same school. During this additional assessment, the words that were counted as incorrect (i.e., the student did not read it correctly within 3 seconds) were added to the pool of unknown words for each student. This condition of five more unknown words took place to demonstrate how many additional words students can practice and learn using reciprocal peer tutoring per week.

Weekly Pretest

During baseline on Fridays the experimenter or the research assistant conducted a pretest on the teacher’s five weekly words that were planned to be introduced and instructed to the students the following week. However, all the participants did not take the pretest on the initial week of baseline. This pretest came to assess students’ ability to recognize any of the words that will be instructed and document this information to evaluate how many new word the students learned from teacher’s instruction. The same
procedures that were used to assess student’s recognition of the weekly words were used here.

Every week on Mondays and right before the peer tutoring session started, the experimenter or the research assistant conducted a pretest on the two sets of words that were instructed in the peer tutoring sessions. The first set was the teacher’s five weekly words. The second pretest was conducted using each student’s pool of words that were identified previously for each student as unknown words and were obtained from same grade level and the next grade level(s). This pretest came to identify the five unknown words to each student for that week. According to this procedure, each word was pretested twice and considered unknown when the student could not read it correctly within three seconds in both pretests. This considered a conservative pretest measure where the words were identified as totally unknown for the student. The same procedures that were used to assess student’s recognition of the weekly words were used here.

Peer Tutoring

Peer tutoring sessions began the week following training sessions ended. Peer tutoring conducted in the 30-minute morning and afternoon sessions. The six first graders peer tutoring session conducted from 9:00 to 9:30 A.M. and the four second graders peer tutoring session conducted from 1:00 to 1:30 P.M. Each peer tutoring session consisted of four parts: Tutor Huddle, Practice, Testing, and Charting.

(a) Tutor Huddle: During the first four minutes of each tutoring session, students engaged in a tutor huddle. For the first group of students, each tutor huddle group consisted of two students. When the next group of students joined the peer tutoring sessions, each tutor huddle group consisted of four students. Finally, when the last group
of students joined the peer tutoring sessions, each tutor huddle group consisted of six students. However, after the withdrawal of the two second graders from the study and after peer tutoring sessions for the first and second graders were conducted in two different times the students number in each tutor huddle group differ. The tutor huddle for second graders consisted of two students in each group and the tutor huddle for the first graders consisted of three students in each group.

Prior to attending the tutor huddle, tutoring partners exchanged their folders and each group went to its designated area. During tutor huddle, each student displayed each of their partner’s cards to the other members of the huddle group and read the word out loud to the group. When the word was read correctly, the other group members reinforce the correct responses by saying “yes.” The student then moved on to the next word card. When the response was read incorrectly, the other huddle members read the word correctly together out loud. The tutor then repeated the word correctly before moving on to the next card. This process allowed the presenter to practice reading the word he or she would teach to his or her partner. Students raised their hands to ask the experimenter or the research assistant for help only when no one in the tutor huddle knew how to read the word. During tutoring sessions, when the student is unable to read the word, he or she raised his or her hand to ask for experimenter assistance.

(b) Practice: After the 4-minute tutor huddle, the students moved to a pre-assigned spot to meet their partners and began the tutoring practice session. Practice consisted of two six-minute sessions in which the actual teaching of the high frequency words took place. The students sat at their assigned seats, facing each other. The experimenter gave each student the chance to begin tutoring. During the first six minute practice session, the
peer tutoring folder belonging to the first tutee was opened between the tutor and the
tutee. The tutor removed the tutee’s word flashcards from the “GO” pocket and presented
the card to the student one at a time with the word facing the tutee. When the tutor’s
partner read the word correctly, the tutor praised the student for correct responses by
saying “Good” or “Great” and then proceeded to the next card. When the word was read
incorrectly or when three seconds of time elapsed with no response, the tutor said “Try
it.” When the word was read incorrectly again or took longer than three seconds, the tutor
read the answer to the tutee. The tutee then repeated the correct response. After all the
cards were presented, the tutor shuffled the cards and presented them to the tutee again.
The procedure continued as many times as possible until the first 6-minute period
elapsed. At the end of the 6-minute practice, the tutoring partners reversed roles and
engaged in a second 6-minute practice session.

(c) Testing: After the completion of both practice sessions, the students began the
testing phase. Testing is the portion of the tutoring session where the tutee demonstrates
what he or she has learned from the practice by reading the words correctly. After the
experimenter announced the first testing session, the first tutor conducted the first test
with his or her partner. The tutor removed his or her partner’s word cards from the “GO”
pocket and then turned over the folder so that the assessment format (i.e., a smiling face
and a large “X”) was displayed. Each word was presented only once to the tutee. Words
are presented one at a time. The tutor did not provide any praise or corrective feedback to
his or her partner during the testing phase. When the word was read correctly, the tutor
placed the card onto the smiling face on the folder. When the word was read incorrectly
or when the 3-second time limit elapsed, the tutor then placed the card onto the “X.”
After all the words were tested, the tutor draw a circle in the box of the grid on the back side of the cards that were on the “smiling face” pile (indicating correct) and cards that were on “X” pile were marked with an “X” (indicating incorrect) in the grid. Once all the cards were marked, the cards and folder were placed aside for the second testing session to commence. Then the tutor and tutee switched their roles and followed the same procedures to conduct the second testing.

(d) Charting: After the completion of both testing sessions, the tutor counted how many correct words the tutee had in that particular session and placed the cards back in the “GO” pocket to be practiced in the next session. All The cards were placed in the “STOP” pocket by the end of the week indicating the end of practice for this particular set of words. The two students then switched their folders back. Each student next colored one box on the left panel charting area of the folder for each card read correctly.

Reward System

A reward system was employed during peer tutoring sessions. As soon as each student sat down in his or her Tutor Huddle, they removed the star card from the folder and placed it on the table beside them. The students kept the star cards out throughout the session so that the experimenter was able to stamp their card when the student’s appropriate behavior is observed. The experimenter and the research assistant circulated the room and checked on tutoring pairs throughout the session. When the students were on-task and performing the trained behaviors satisfactorily, the experimenter and/or the research assistant stamped on the student’s star card and provided verbal praise. A student who accumulated 20 stars received a tangible reinforcement (e.g. candy, pencil, eraser, etc.).
No Teacher Instruction

In Week Eleven of the study, the second grade teacher did not introduce the five weekly words to the class. Therefore, the experimenter introduced ten unknown words for the second grade participants to practice during peer tutoring sessions for that week. Similarly, in the Week 14 and the last of the study, the first grade teachers did not introduce the five weekly words to the class. Therefore, the experimenter introduced ten unknown words for the first grade participants to practice during peer tutoring sessions for that week. In this condition, the students practice the ten unknown sight words with peer tutoring alone without teachers’ instruction.

Posttest

The same measures that were used as a pretest were used as a posttest to determine the number of high frequency sight words in the student’s repertoire post peer tutoring comparing to the pretest. The experimenter and a research assistant administered the posttest to each target student individually after completing peer tutoring. The student had the sight words listed on paper in front of him or her which were covered by a manila folder with a cut out to move to each word. The cutout blocked out other words to assist the student to focus. The experimenter checked off sight words that are pronounced correctly by the student on a separate sheet. Words had to be read within three seconds to be considered as read correctly.

Maintenance

During the tutoring program, the maintenance probes were given at times other than during peer tutoring sessions, usually immediately following the session after the current set of words was assessed for recognition. Maintenance probes occurred once a
week immediately after a peer tutoring session ended to measure how many words read correctly in the previous week on weekly tests the student could still correctly read. One week following the initial presentation of a set of weekly high frequency word cards, the experimenter or research assistant displayed 3x5 index cards upon which each of the words was written in black ink. Students were asked to read the word out loud. To be considered correct, words had to be read correctly within three seconds of presentation. Maintenance checks were conducted after the peer tutoring program intervention was terminated in order to assess the students’ ability to read the word accurately over time.

Maintenance checks were conducted after the peer tutoring program intervention is terminated in order to assess maintenance of the last two sets of words that have been considered learned during the intervention.

Generalization

Generalization was assessed using sentences that were created by the experimenter from the sight words learned, the students were asked to read the sentences out loud. The experimenter and/or the research assistant displayed 3x5 index cards upon which a sentence was written in black ink. Each sentence was created from one sight word that the student had previously read correctly (see Appendices M & P). The student does not have to read the whole sentence correctly for the word to be considered generalized, the word was considered generalized if the student read the targeted word correctly. Generality probes started at the end of the first week of the beginning of the study and continued to occur once every week on Fridays throughout the study to measure how many words previously read correctly the student could read correctly in
context. The generality probes occurred immediately after the peer tutoring session and maintenance tests were concluded.

*Social Validity Measure*

The classroom teachers of first and second grades were asked to complete a social validity questionnaire after the study is terminated. The questionnaire listed questions regarding the goal (e.g., the importance of the selected academic and social behavior), and the results of the study (e.g., the academic and social benefits for students and the generalization of the words learned) (see Appendix F).

The students also were involved in the social validity measure after the peer tutoring is terminated. Each student was interviewed by using the questions listed in (Appendix E). The interviewer asked the students to elaborate on their answers. Students were taken one-by-one to answer the interview questions. Questions on the interview form were an open-ended format and were used to elicit an overall evaluation of the peer tutoring program, their likes and dislikes about the procedures, their awareness of progress, and preference for teaching method of learning sight word. The parents also were asked to express their opinions regarding the study by completing a questionnaire that sent home to them (see Appendix G).
CHAPTER 4

RESULTS

The results of this study are presented in this chapter. Data are presented on interobserver agreement, intervention integrity, learning of sight words, maintenance, generalization, and social validity measures.

Interobserver Agreement Results

Interobserver agreement measures for the number of words learned, weekly pretests, maintenance, and generalization was taken during approximately 30% of assessment sessions and 100% of the procedural checklists for tutors. Interobserver agreement for number of sight words learned was taken during 14 sessions. Interobserver agreement for weekly pretest, maintenance, and generalization were taken during five sessions. During baseline and intervention, a second observer sat adjacent to the experimenter and targeted student during assessment of pretest, sight word recognition, words maintenance, and words generalization. The experimenter and second observer recorded correct or incorrect responses independently on separate recorder forms. Percentage of agreement was calculated as the number of agreements divided by the number of agreements and disagreements multiplied by 100. The overall range of agreement was 99% to 100% with a mean of 99.5%. The mean interobserver agreement
for the assessments during the baseline condition was 99%. The mean interobserver agreement for the assessments during the Peer Tutoring condition was 99%. The mean interobserver agreement for the pretests assessments during baseline was 100%. The mean interobserver agreement for the pretests assessments during intervention was 100%. The mean interobserver agreement for the assessments of number of words learned during baseline was 99%. The mean interobserver agreement for the assessments of number of words learned during intervention was 100%. The mean interobserver agreement for the assessments of words maintenance during baseline was 100%. During intervention, the overall range of agreement was 98% to 100% with a mean of 99%. The overall range of interobserver agreement for the assessments of words generalization during baseline was 98% to 100% with a mean of 99%. The mean interobserver agreement for the assessments of word generalization during intervention was 100%. For the procedural checklist for the tutor’s behavior, the overall range of agreement was 90%-100% with a mean of 97.4%.

Procedural Reliability Results

Treatment integrity for student behavior and experimenter behavior was also assessed. Treatment integrity for student behavior was taken during 10 sessions. The participants were selected to be observed using procedural reliability checklists. Tutor treatment integrity was measured by dividing the number of items carried out correctly by the total number of items and then multiplying by 100. The tutor behavior procedural check indicated that 99% of tutor procedures were carried out correctly. Eight of the ten students selected for observation, successfully completed all 20 items (100% accuracy) of the tutor behavior procedural checklist (see Appendix H). Student 3 and Student 10
successfully completed 19 out of possible 20 items (95% accuracy). Both Students 3 and Student 10 did not praise their partners at the end of the testing phase. A second procedural reliability checklist was created to ensure that the experimenter implemented the baseline assessments in a consistent way and as planned. Treatment integrity for experimenter’s behavior was taken during 4 sessions. It was also calculated in a similar way. Observation revealed that the treatment integrity for the experimenter was 100% that is 100% of procedures were followed correctly by the experimenter.

Weekly Sight Words Learned

*Student 1*

During baseline, students were presented and instructed on the “the teacher five weekly words”. During intervention, two sets of high frequency sight words were presented and instructed to the students each week using peer tutoring. One set consisted of “the teacher five weekly words” and the second set consisted of five “unknown words”. In the last week of the study (Week 14), first grade teachers did not provide the teacher five weekly words to the class. For that week that was referred to as (No Teacher Instruction), the first grade participants were instructed on a total of ten “unknown words”. Similarly, in the Week 11 of the study, which is the week before Spring break, the second grade teacher did not provide the teacher five weekly words to the class. For that week that was referred to as (No Teacher Instruction), the second grade participants were instructed on a total of ten “unknown words”.

A word was considered learned if the student could not correctly read the word during the pretest but could correctly read it after instruction. Words learned were calculated by subtracting the number of words considered known on the pretest, before
instruction took place, from the total number of words read correctly after the students received instruction. Through out the study the participants were pretested weekly on the set(s) of words that were instructed to them except for the initial week of baseline where no pretests were given to the participants. That was overlooked by the experimenter and was corrected immediately the second week of the study.

**Baseline**

*Pretest.* During baseline Student 1 was present for two out of three possible weeks. No pretest was given on the initial week of baseline. He took a pretest during Week 3. On the pretest he did not read any words correctly (see Figure 4.1).

*Teacher five weekly words.* During baseline Student 1 was present for five out of 12 possible sessions across four weeks. Student 1 did not learn any words during the baseline condition. He learned zero words out of 10 possible words (see Figure 4.1).

**Intervention**

*Pretest.* During intervention Student 1 was present for ten of ten weekly pretests. On the pretests he read correctly one out of 100 possible words. His percentage of accuracy was 1% (see Figure 4.1).

*Teacher five weekly words.* During intervention Student 1 was present for 25 out of 27 possible sessions across 9 weeks. Student 1 read correctly 42 out of 44 possible words. His percentage of accuracy was 95% (see Figure 4.1).

*Five unknown words.* During intervention Student 1 was present for 28 out of 30 possible sessions across 10 weeks (include no teacher instruction week of all unknown words). Student 1 read correctly 51 out of 55 possible words. His percentage of accuracy was 92.7% (see Figure 4.1).
Figure 4.1: Number of weekly sight words learned across sessions for Student 1, 2, and 3. Each word set was assessed three times weekly. In Baseline students were instructed on five words (teacher five weekly words); in Peer Tutoring students were instructed on ten words (teacher five weekly words and five unknown words). Missing data points indicate student absences.
Combined. During intervention Student 1 read 93 out of 99 possible words correctly from the combined teacher weekly words and unknown words. His percentage of accuracy was 93.9% (see Figure 4.1).

Student 2

Baseline

Pretest. During Baseline Student 2 was present for three of three weekly pretests across five weeks. On the pretests he read correctly one out of 15 possible words across three weeks. His percentage of accuracy was 6.6% (see Figure 4.1).

Teacher five weekly words. During baseline Student 2 was present for nine of nine sessions across three weeks. Student 2 read correctly 8 out of 14 possible words. His percentage of accuracy was 57.1% (see Figure 4.1).

Intervention

Pretest. During intervention Student 2 was present for eight of eight weekly pretests across eight weeks. On the pretests he read correctly six out of 80 possible words. His percentage of accuracy was 7.5% (see Figure 4.1).

Teacher five weekly words. During intervention Student 2 was present for 18 of possible 21 sessions across seven weeks. Student 2 read correctly 29 of 29 words. His percentage of accuracy was 100% (see Figure 4.1).

Five unknown words. During intervention Student 2 was present for 20 out of 24 possible sessions across eight weeks (include no teacher instruction week of all unknown words). Student 2 read correctly 45 out of 45 possible words. His percentage of accuracy was 100% (see Figure 4.1).
Combined. During intervention Student 2 read correctly 74 out of 74 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 100% (see Figure 4.1).

Student 3

Baseline

Pretest. During baseline Student 3 was present for six of six weekly pretests across six weeks. On the pretests she read correctly four out of 30 possible words across six weeks. Her percentage of accuracy was 13.3% (see Figure 4.1).

Teacher’s five weekly words. During baseline Student 3 was present for 21 of 21 sessions across seven weeks. Student 3 read correctly 21 out of 26 possible words. Her percentage of accuracy was 80.7% (see Figure 4.1).

Intervention

Pretest. During intervention Student 3 was present for seven of seven weekly pretests across seven weeks. On the pretests she read correctly seven out of 70 possible words. Her percentage of accuracy was 10% (see Figure 4.1).

Teacher five weekly words. During intervention Student 3 was present for 18 of 18 sessions across six weeks. Student 3 read correctly 22 out of 23 possible words. Her percentage of accuracy was 95.6% (see Figure 4.1).

Five unknown words. During intervention Student 3 was present for 21 of 21 sessions across seven weeks (include no teacher instruction week of all unknown words). Student 3 read correctly 39 out of 40 possible words. Her percentage of accuracy was 97.5% (see Figure 4.1).
Combined. During intervention Student 3 read correctly 61 out of 63 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 96.8% (see Figure 4.1).

Student 4

Baseline

Pretest. During baseline Student 4 was present for three of three weekly pretests across three weeks. On the pretests she read correctly one out of 15 possible words across three weeks. Her percentage of accuracy was 6.6% (see Figure 4.2).

Teacher five weekly words. During baseline Student 4 was present for 12 sessions out of possible 12 sessions across four weeks. Student 4 read correctly five out of 14 possible words. Her percentage of accuracy was 35.7% (see Figure 4.2).

Intervention

Pretest. During intervention Student 4 was present for ten of ten weekly pretests. On the pretests she read correctly zero out of 100 possible words. Her percentage of accuracy was 0% (see Figure 4.2).

Teacher five weekly words. During intervention Student 4 was present for 23 out of 27 possible sessions across nine weeks. Student 4 read correctly 44 out of 45 possible words. Her percentage of accuracy was 97.7% (see Figure 4.2).

Five unknown words. During intervention Student 4 was present for 26 out of 30 possible sessions across ten weeks (include no teacher instruction week of all unknown words). Student 4 read correctly 53 out of 55 possible words. Her percentage of accuracy was 96.3% (see Figure 4.2).
Figure 4.2: Number of weekly sight words learned across sessions for Student 4, 5, and 6. Each word set was assessed three times weekly. In Baseline students were instructed on five words (teacher five weekly words); in Peer Tutoring students were instructed on ten words (teacher five weekly words and five unknown words). Missing data points indicate student absences.
Combined. During intervention Student 4 read correctly 97 out of 100 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 97% (see Figure 4.2).

Student 5

Baseline

Pretest. During baseline Student 5 was present for two of possible three weekly pretests across three weeks. On the pretests he read correctly one out of ten possible words across two weeks. His percentage of accuracy was 10% (see Figure 4.2).

Teacher five weekly words. During baseline Student 5 was present for eight of possible nine sessions across three weeks. Student 5 read correctly seven out of nine possible words. His percentage of accuracy was 77.7% (see Figure 4.2).

Intervention

Pretest. During intervention Student 5 was present for five of five weekly pretests across five weeks. On the pretests he read correctly five out of 50 possible words across five weeks. His percentage of accuracy was 10% (see Figure 4.2).

Teacher five weekly words. During intervention Student 5 was present for 12 of possible 15 sessions across five weeks. Student 5 read correctly 20 of 20 words. His percentage of accuracy was 100% (see Figure 4.2).

Five unknown words. During intervention Student 5 was present for 12 out of 15 possible sessions across five weeks. Student 5 read correctly 23 out of 25 possible words. His percentage of accuracy was 92% (see Figure 4.2).
Combined. During intervention Student 5 read correctly 44 out of 46 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 95.6% (see Figure 4.2).

Student 6

Baseline

Pretest. During baseline Student 6 was present for six of six weekly pretests across six weeks. On the pretests she read correctly nine out of 30 possible words across six weeks. Her percentage of accuracy was 30% (see Figure 4.2).

Teacher five weekly words. During baseline Student 6 was present for 21 of 21 sessions across seven weeks. Student 6 read correctly 15 out of 21 possible words. Her percentage of accuracy was 61.9% (see Figure 4.2).

Intervention

Pretest. During intervention Student 6 was present for seven of seven weekly pretests across seven weeks. On the pretests she read correctly 16 out of 70 possible words. Her percentage of accuracy was 22.8% (see Figure 4.2).

Teacher five weekly words. During intervention Student 6 was present for 18 of 18 sessions across six weeks. Student 6 read correctly 14 of 14 words. Her percentage of accuracy was 100% (see Figure 4.2).

Five unknown words. During intervention Student 6 was present for 21 of 21 sessions across seven weeks (include no teacher instruction week of all unknown words). Student 6 read correctly 39 out of 40 words. Her percentage of accuracy was 97.5% (see Figure 4.2).
Combined. During intervention Student 6 read correctly 53 out of 54 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 98.1% (see Figure 4.2).

Student 7

Baseline

Pretest. During baseline Student 7 was present for three of three weekly pretests across three weeks. On the pretests he read correctly six out of 15 possible words across three weeks. His percentage of accuracy was 40% (see Figure 4.3).

Teacher five weekly words. During baseline Student 7 was present for 12 of 12 sessions across four weeks. Student 7 read correctly eight out of 9 possible words. His percentage of accuracy was 88.8% (see Figure 4.3).

Intervention

Pretest. During intervention Student 7 was present for nine of nine weekly pretests across nine weeks. On the pretests he read correctly 31 out of 90 possible words. His percentage of accuracy was 34.4% (see Figure 4.3).

Teacher five weekly words. During intervention Student 7 was present for 26 of possible 30 sessions across nine weeks. Student 7 read correctly nine of nine words. His percentage of accuracy was 100% (see Figure 4.3).

Five unknown words. During intervention Student 7 was present for 29 out 33 possible sessions across ten weeks (include no teacher instruction week of all unknown words). Student 7 read correctly 54 out of 55 possible words. His percentage of accuracy was 98.1% (see Figure 4.3).
Figure 4.3: Number of weekly words learned across sessions for Student 7, 8, 9, and 10. Each word set was assessed three times weekly. In Baseline students were instructed on five words; in PT students were instructed on ten words. Missing data points indicate student absences.
Combined. During intervention Student 7 read correctly 63 out of 64 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 98.4% (see Figure 4.3).

Student 8

Baseline

Pretest. During baseline Student 8 was present for four of five weekly pretests across five weeks. On the pretests he read correctly 16 out of 20 possible words across four weeks. His percentage of accuracy was 80% (see Figure 4.3).

Teacher five weekly words. During baseline Student 8 was present for 17 out of 18 possible sessions across five weeks. Student 8 read correctly four of four words. His percentage of accuracy was 100% (see Figure 4.3).

Intervention

Pretest. During intervention Student 8 was present for eight of eight weekly pretests across eight weeks. On the pretests he read correctly 34 out of 80 possible words. His percentage of accuracy was 42.5% (see Figure 4.3).

Teacher five weekly words. During intervention Student 8 was present for 17 out of 21 possible sessions across seven weeks. Student 8 read correctly one of one word. His percentage of accuracy was 100% (see Figure 4.3).

Five unknown words. During intervention Student 8 was present for 20 out of 24 possible sessions across eight weeks (include no teacher instruction week of all unknown words). Student 8 read correctly 45 of 45 words. His percentage of accuracy was 100% (see Figure 4.3).
Combined. During intervention Student 8 read correctly 46 of 46 words from the combined teacher weekly words and unknown words. His percentage of accuracy was 100% (see Figure 4.3).

**Student 9**

**Baseline**

*Pretest.* During baseline Student 9 was present for four of six possible weekly pretests across six weeks. On the pretests he read correctly 15 out of 20 possible words. His percentage of accuracy was 75% (see Figure 4.3).

*Teacher five weekly words.* During baseline Student 9 was present for 19 out of 21 possible sessions across seven weeks. Student 9 read correctly four out of five possible words. His percentage of accuracy was 80% (see Figure 4.3).

**Intervention**

*Pretest.* During intervention Student 9 was present for seven of seven weekly pretests across seven weeks. On the pretests he read correctly 27 out of 70 possible words. His percentage of accuracy was 38.5% (see Figure 4.3).

*Teacher five weekly words.* During intervention Student 9 was present for 15 out of 18 possible sessions across six weeks. Student 9 read correctly three of three words. His percentage of accuracy was 100% (see Figure 4.3).

*Five unknown words.* During intervention Student 9 was present for 18 out of 21 possible sessions across seven weeks (include no teacher instruction week of all unknown words). Student 9 read correctly 40 of 40 words. His percentage of accuracy was 100% (see Figure 4.3).
Combined. During intervention Student 9 read correctly 43 of 43 words from the combined teacher weekly words and unknown words. His percentage of accuracy was 100% (see Figure 4.3).

Student 10

Baseline

Pretest. During baseline Student 10 was present for five of six weekly pretests across six weeks. On the pretests he read correctly 18 out of 25 possible words across six weeks. His percentage of accuracy was 75% (see Figure 4.3).

Teacher five weekly words. During baseline Student 10 was present for 19 of possible 21 sessions across seven weeks. Student 10 read correctly seven of seven words. His percentage of accuracy was 100% (see Figure 4.3).

Intervention

Pretest. During intervention Student 10 was present for seven of seven weekly pretests across seven weeks. On the pretest he read correctly 29 out of 70 possible words. His percentage of accuracy was 41.4% (see Figure 4.3).

Teacher five weekly words. During intervention Student 10 was present for 14 out of possible 18 sessions across six weeks. Student 10 read correctly one of one word. His percentage of accuracy was 100% (see Figure 4.3).

Five unknown words. During intervention Student 10 was present for 17 out of 21 possible sessions across seven weeks (include no teacher instruction week of all unknown words). Student 10 read correctly 40 of 40 words. His percentage of accuracy was 100% (see Figure 4.3).
Combined. During intervention Student 10 read correctly 41 of 41 words from the combined teacher weekly words and unknown words. His percentage of accuracy was 100% (see Figure 4.3).

Group Results

First Grade Student (Student 1-6)

Baseline

Pretest. On the pretests during baseline First grade students read correctly 16 out of 110 possible words. The group percentage of accuracy was 14.5% (see Figure 4.1, 4.2).

Teacher five weekly words. During baseline First grade students read correctly 54 out of 94 possible words. The group percentage of accuracy was 57.4% (see Figure 4.1, 4.2).

Intervention

Pretest. On the pretests during intervention First grade students read correctly 34 out of 470 possible words. The group percentage of accuracy was 7.2% (see Figure 4.1, 4.2).

Teacher five weekly words. During intervention First grade students read correctly 172 out of 176 possible words. The group percentage of accuracy was 97.7% (see Figure 4.1, 4.2).

Five unknown words. During intervention First grade student read correctly 249 out of 260 possible words. The group percentage of accuracy was 95.7% (see Figure 4.1, 4.2).
Combined. During intervention First grade students read correctly 421 out of 436 possible words from the combined teacher weekly words and unknown words. The group percentage of accuracy was 96.5% (see Figure 4.1, 4.2).

Second Grade Student (Student 7-10)

Baseline

Pretest. On the pretests during baseline Second grade students read correctly 55 out of 310 possible words. The group percentage of accuracy was 17.7% (see Figure 4.3).

Teacher five weekly words. During baseline Second grade students read correctly 23 out of 25 possible words. The group percentage of accuracy was 92% (see Figure 4.3).

Intervention

Pretest. On the pretests during intervention Second grade students read correctly 122 out of 135 possible words. The group percentage of accuracy was 90.3% (see Figure 4.3).

Teacher five weekly words. During intervention Second grade students read correctly 13 of 13 words. The group percentage of accuracy was 100% (see Figure 4.3).

Five unknown words. During intervention Second grade student read correctly 179 out of 180 possible words. The group percentage of accuracy was 99.4% (see Figure 4.3).

Combined. During intervention First grade students read correctly 192 out of 193 words from the combined teacher weekly words and unknown words. The group percentage of accuracy was 99.4% (see Figure 4.3).
<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>Peer Tutoring</th>
<th>Percentage of Gains %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Words Learned/ Possible</td>
<td>Percentage of Words Learned %</td>
<td># of Words Learned/ Possible</td>
</tr>
<tr>
<td>Student 1</td>
<td>0/10</td>
<td>0%</td>
<td>42/44</td>
</tr>
<tr>
<td>Student 2</td>
<td>8/14</td>
<td>57.1%</td>
<td>29/29</td>
</tr>
<tr>
<td>Student 3</td>
<td>21/26</td>
<td>80.7%</td>
<td>22/23</td>
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<td>Student 4</td>
<td>5/14</td>
<td>35.7%</td>
<td>44/45</td>
</tr>
<tr>
<td>Student 5</td>
<td>7/9</td>
<td>77.7%</td>
<td>20/20</td>
</tr>
<tr>
<td>Student 6</td>
<td>15/21</td>
<td>61.9%</td>
<td>14/14</td>
</tr>
<tr>
<td>Student 7</td>
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<td>88.8%</td>
<td>9/9</td>
</tr>
<tr>
<td>Student 8</td>
<td>4/4</td>
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<tr>
<td>Student 9</td>
<td>4/5</td>
<td>80%</td>
<td>3/3</td>
</tr>
<tr>
<td>Student 10</td>
<td>7/7</td>
<td>100%</td>
<td>1/1</td>
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<td>1st graders</td>
<td>54/94</td>
<td>57.4%</td>
<td>172/176</td>
</tr>
<tr>
<td>2nd graders</td>
<td>23/25</td>
<td>92%</td>
<td>13/13</td>
</tr>
</tbody>
</table>

Note: First grade students (Student 1 through 6)  
Second grade students (Students 7 through 10)

Table 4.1: Number of “teacher five weekly words” learned across conditions.
Maintenance of High-Frequency Sight Words

Student 1

Maintenance is the extent to which the student continues to perform the target behavior after a portion or all of the intervention is terminated. Maintenance probes started at the end of the second week of the beginning of the study and continued to occur once every week to measure how many words read correctly in the previous week the student can still correctly read.

Baseline

Teacher five weekly words. During baseline no maintenance probes were administered for Student 1 because he did not read correctly any of the words that were instructed (see Figure 4.4).

Intervention

Teacher five weekly words. During intervention Student 1 was present for nine of nine maintenance probes across nine weeks. Student 1 maintained 26 of 44 possible words. His percentage of accuracy was 59.1% (see Figure 4.4).

Five unknown words. During intervention Student 1 was present for ten of ten maintenance probes across 10 weeks (include no teacher instruction week of all unknown words). Student 1 maintained 34 out of 51 possible words. His percentage of accuracy was 66.6% (see Figure 4.4).

Combined. During intervention Student 1 maintained 60 out of 95 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 63.2% (see Figure 4.4).
Figure 4.4: Number of weekly sight words maintained for Student 1, 2, and 3. Each word set was assessed one week after the words were instructed. In Baseline students were assessed on five words; in Peer Tutoring students were assessed on ten words. Missing data points indicate student absences.

Note: Student 1 did not read correctly any word in Baseline therefore no maintenance probe was administered.


**Student 2**

*Baseline*

*Teacher five weekly words.* During baseline Student 2 was present for three of three maintenance probes across three weeks. Student 2 maintained six out of 8 possible words. His percentage of accuracy was 75% (see Figure 4.4).

*Intervention*

*Teacher five weekly words.* During intervention Student 2 was present for six out of seven possible maintenance probes across seven weeks. Student 2 maintained 23 out of 24 possible words. His percentage of accuracy was 95.8% (see Figure 4.4).

*Five unknown words.* During intervention Student 2 was present for seven out of eight maintenance probes across eight weeks (include no teacher instruction week of all unknown words). Student 2 maintained 37 out of 39 possible words. His percentage of accuracy was 94.8% (see Figure 4.4).

*Combined.* During intervention Student 2 maintained 60 out of 63 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 95.2% (see Figure 4.4).

**Student 3**

*Baseline*

*Teacher five weekly words.* During baseline Student 3 was present for seven of seven maintenance probes. Student 3 maintained 16 out of 21 possible words. Her percentage of accuracy was 76.1% (see Figure 4.4).
Intervention

*Teacher five weekly words.* During intervention Student 3 was present for six of six maintenance probes across six weeks. Student 3 maintained 21 out of 22 possible words. Her percentage of accuracy was 95.4% (see Figure 4.4).

*Five unknown words.* During intervention Student 3 was present for seven of seven maintenance probes across seven weeks (include no teacher instruction week of all unknown words). Student 3 maintained 33 out of 39 possible words. Her percentage of accuracy was 84.6% (see Figure 4.4).

*Combined.* During intervention Student 3 maintained 54 out of 61 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 88.5% (see Figure 4.4).

Student 4

Baseline

*Teacher five weekly words.* During Baseline Student 4 was presented for three out of four possible maintenance probes. Student 4 maintained three out of five possible words. Her percentage of accuracy was 60% (see Figure 4.5).

Intervention

*Teacher five weekly words.* During intervention Student 4 was present for eight out of nine possible maintenance probes. Student 4 maintained 31 out of 39 possible words. Her percentage of accuracy was 79.4% (see Figure 4.5).

*Five unknown words.* During intervention Student 4 was present for nine out of ten possible maintenance probes across nine weeks (include no teacher instruction week
Figure 4.5: Number of weekly sight words maintained for Student 4, 5, and 6. Each word set was assessed one week after the words were instructed. In Baseline students were assessed on five words; in Peer Tutoring students were assessed on ten words. Missing data points indicate student absences.
of all unknown words). Student 4 maintained 34 out of 48 possible words. Her percentage of accuracy was 70.8% (see Figure 4.5).

Combined. During intervention Student 4 maintained 65 out of 87 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 74.7% (see Figure 4.5).

Student 5

Baseline

Teacher five weekly words. During Baseline Student 5 was present for three of three possible maintenance probes. Student 5 maintained seven of seven words. His percentage of accuracy was 100% (see Figure 4.5).

Intervention

Teacher five weekly words. During intervention Student 5 was present for three out of five possible maintenance probes. Student 5 maintained ten of ten words. His percentage of accuracy was 100% (see Figure 4.5).

Five unknown words. During intervention Student 5 was present for three out of five possible maintenance probes. Student 5 maintained 12 out of 15 possible words. His percentage of accuracy was 80% (see Figure 4.5).

Combined. During intervention Student 5 maintained 22 out of 25 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 88% (see Figure 4.5).
**Student 6**

**Baseline**

*Teacher five weekly words.* During Baseline Student 6 was present for seven of seven maintenance probes. Student 6 maintained 13 out of 15 possible words. Her percentage of accuracy was 86.6% (see Figure 4.5).

**Intervention**

*Teacher five weekly words.* During intervention Student 6 was present for six of six maintenance probes. Student 6 maintained 13 out of 14 possible words. Her percentage of accuracy was 92.8% (see Figure 4.5).

*Five unknown words.* During intervention Student 6 was present for seven of seven maintenance probes (include no teacher instruction week of all unknown words). Student 6 maintained 36 out of 39 possible words. Her percentage of accuracy was 92.3% (see Figure 4.5).

*Combined.* During intervention Student 6 maintained 49 out of 53 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 92.4% (see Figure 4.5).

**Student 7**

**Baseline**

*Teacher five weekly words.* During Baseline Student 7 was presented for four of four maintenance probes. Student 7 maintained six out of eight possible words. His percentage of accuracy was 75% (see Figure 4.6).
Figure 4.6: Number of weekly words maintained for Student 7, 8, 9, and 10. Each word set was assessed one week after the words were instructed. In Baseline students were assessed on five words; in Peer Tutoring students were assessed on ten words. Missing data points indicate students’ absences.
**Intervention**

*Teacher five weekly words.* During intervention Student 7 was present for nine of nine maintenance probes. Student 7 maintained eight out of nine possible words. His percentage of accuracy was 88.8% (see Figure 4.6).

*Five unknown words.* During intervention Student 7 was present for ten of ten maintenance probes (include no teacher instruction week of all unknown words). Student 7 maintained 47 out of 54 possible words. His percentage of accuracy was 87.1% (see Figure 4.6).

*Combined.* During intervention Student 7 maintained 55 out of 63 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 87.3% (see Figure 4.6).

**Student 8**

*Baseline*

*Teacher five weekly words.* During Baseline Student 8 was presented for six of six maintenance probes. Student 8 maintained four of four words. His percentage of accuracy was 100% (see Figure 4.6).

*Intervention*

*Teacher five weekly words.* During intervention, Student 8 was presented for seven of seven maintenance probes. Student 8 maintained one of one word. His percentage of accuracy was 100% (see Figure 4.6).

*Five unknown words.* During intervention, Student 8 was presented for eight of eight maintenance probes (include no teacher instruction week of all unknown words).
Student 8 maintained 43 out of 45 possible words. His percentage of accuracy was 95.5% (see Figure 4.6).

Combined. During intervention Student 8 maintained 44 out of 46 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 95.6% (see Figure 4.6).

Student 9

Baseline

Teacher five weekly words. During Baseline Student 9 was present for five out of six possible maintenance probes. Student 9 maintained three out of four possible words. His percentage of accuracy was 75% (see Figure 4.6).

Intervention

Teacher five weekly words. During intervention Student 9 was presented for six of six maintenance probes. Student 9 maintained two of two words. His percentage of accuracy was 100% (see Figure 4.6).

Five unknown words. During intervention Student 9 was presented for seven of seven maintenance probes (include no teacher instruction week of all unknown words). Student 9 maintained 35 out of 40 possible words. His percentage of accuracy was 87.5% (see Figure 4.6).

Combined. During intervention Student 9 maintained 37 out of 42 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 88.1% (see Figure 4.6).
Student 10

Baseline

*Teacher five weekly words.* During Baseline Student 10 was present for seven of seven maintenance probes. Student 10 maintained seven of seven words. His percentage of accuracy was 100% (see Figure 4.6).

Intervention

*Teacher five weekly words.* During intervention Student 10 was present for five out of six possible maintenance probes. Student 10 maintained one of one words. His percentage of accuracy was 100% (see Figure 4.6).

*Five unknown words.* During intervention Student 10 was present for six out of seven possible maintenance probes (include no teacher instruction week of all unknown words). Student 10 maintained 35 of 35 words. His percentage of accuracy was 100% (see Figure 4.6).

*Combined.* During intervention Student 10 maintained 36 out of 36 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 100% (see Figure 4.6).

Group Results

*First Grade Student (Student 1-6)*

Baseline

*Teacher five weekly words.* During baseline First grade students maintained 45 out of 66 possible words. The group percentage of accuracy was 68.1% (see Figure 4.4, 4.5).
*Intervention*

*Teacher five weekly words.* During intervention First grade students maintained 124 out of 153 possible words. The group percentage of accuracy was 81.1% (see Figure 4.4, 4.5).

*Five unknown words.* During intervention First grade students maintained 186 out of 231 possible words. The group percentage of accuracy was 80.5% (see Figure 4.4, 4.5).

*Combined.* During intervention First grade students maintained 310 out of 384 possible words from the combined teacher weekly words and unknown words. The group percentage of accuracy was 80.7% (see Figure 4.4, 4.5).

*Second Grade Student (Student 7-10)*

*Baseline*

*Teacher five weekly words.* During baseline Second grade students maintained 20 out of 23 possible words. The group percentage of accuracy was 86.9% (see Figure 4.6).

*Intervention*

*Teacher five weekly words.* During intervention Second grade students maintained 12 out of 13 words. The group percentage of accuracy was 92.3% (see Figure 4.6).

*Five unknown words.* During intervention Second grade students maintained 160 out of 174 possible words. The group percentage of accuracy was 91.9% (see Figure 4.6).

*Combined.* During intervention Second grade students maintained 172 out of 187 possible words from the combined teacher weekly words and unknown words. The group percentage of accuracy was 91.9% (see Figure 4.6).
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<thead>
<tr>
<th>Student</th>
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<th>Peer Tutoring</th>
<th>Percentage of Gains %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Words Maintained/ Possible</td>
<td>Percentage of Words Maintained %</td>
<td># of Words Maintained/ Possible</td>
</tr>
<tr>
<td>Student 1</td>
<td>0/10</td>
<td>0%</td>
<td>26/44</td>
</tr>
<tr>
<td>Student 2</td>
<td>6/8</td>
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<td>23/24</td>
</tr>
<tr>
<td>Student 3</td>
<td>16/21</td>
<td>76.1%</td>
<td>21/22</td>
</tr>
<tr>
<td>Student 4</td>
<td>3/5</td>
<td>60%</td>
<td>31/39</td>
</tr>
<tr>
<td>Student 5</td>
<td>7/7</td>
<td>100%</td>
<td>10/10</td>
</tr>
<tr>
<td>Student 6</td>
<td>13/15</td>
<td>86.6%</td>
<td>13/14</td>
</tr>
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<td>Student 7</td>
<td>6/8</td>
<td>75%</td>
<td>8/9</td>
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</tr>
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<td>Student 10</td>
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<td>100%</td>
<td>1/1</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; graders</td>
<td>45/66</td>
<td>68.1%</td>
<td>124/153</td>
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<td>2&lt;sup&gt;nd&lt;/sup&gt; graders</td>
<td>20/23</td>
<td>86.9%</td>
<td>12/13</td>
</tr>
</tbody>
</table>

Note: First grade students (Student 1 through 6)
Second grade students (Students 7 through 10)

Table 4.2: Number of “teacher five weekly words” maintained across conditions.
Generalization of High-Frequency Sight Words

Student 1

Generalization was assessed using sentences that were created from the sight words learned, the students were asked to read the sentences out loud. Each sentence was created from one sight word that previously read correctly. The student does not have to read the whole sentence correctly for the word to be considered generalized, the word considered generalized if the student identify and read correctly the targeted word. Generality probes started at the end of the first week of the beginning of the study and continued to occur once every week on Fridays to measure how many words previously read correctly the student can generalize and read correctly in a context.

Baseline

Teacher five weekly words. During baseline, no generality probes were administered for Student 1 because he did not read correctly any of the words that were instructed to him (see Figure 4.7).

Intervention

Teacher five weekly words. During intervention Student 1 was present for nine of nine generality probes across nine weeks. Student 1 generalized 37 out of 44 possible words. His percentage of accuracy was 84.1% (see Figure 4.7).

Five unknown words. During intervention Student 1 was present for ten of ten generality probes across ten weeks (include no teacher instruction week of all unknown words). Student 1 generalized 40 out of 51 possible words. His percentage of accuracy was 78.4% (see Figure 4.7).
Figure 4.7: Number of weekly sight words read correctly in context for Student 1, 2, and 3. Each word set was assessed once a week. In Baseline students were assessed on five words; in Peer Tutoring students were assessed on ten words. Missing data points indicate student absences. Note: Student 1 did not read correctly any word in Baseline therefore no generality probe was administered.
Combined. During intervention Student 1 generalized 77 out of 95 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 81.1% (see Figure 4.7).

Student 2

Baseline

Teacher five weekly words. During baseline Student 2 was present for three out of three possible generality probes. Student 2 generalized eight of eight words. His percentage of accuracy was 100% (see Figure 4.7).

Intervention

Teacher five weekly words. During intervention Student 2 was present for six out of seven possible generality probes across seven weeks. Student 2 generalized 24 of 24 words. His percentage of accuracy was 100% (see Figure 4.7).

Five unknown words. During intervention Student 2 was present for seven out of eight generality probes across eight weeks (include no teacher instruction week of all unknown words). Student 2 generalized 38 out of 39 possible words. His percentage of accuracy was 97.4% (see Figure 4.7).

Combined. During intervention Student 2 generalized 62 out of 63 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 98.4% (see Figure 4.7).

Student 3

Baseline

Teacher five weekly words. During baseline Student 3 was present for seven of seven generality probes across seven weeks. Student 3 generalized 18 out of 21 possible
words. Her percentage of accuracy was 85.7% (see Figure 4.7).

**Intervention**

*Teacher five weekly words.* During intervention Student 3 was present for six of six generality probes. Student 3 generalized 20 out of 22 possible words. Her percentage of accuracy was 90.9% (see Figure 4.7).

*Five unknown words.* During intervention Student 3 was present for seven of seven generality probes across seven weeks (include no teacher instruction week of all unknown words). Student 3 generalized 36 out of 39 possible words. Her percentage of accuracy was 92.3% (see Figure 4.7).

*Combined.* During intervention Student 2 generalized 56 out of 61 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 91.8% (see Figure 4.7).

**Student 4**

**Baseline**

*Teacher five weekly words.* During baseline Student 4 was present for four of four generality probes. Student 4 generalized 4 out of 5 possible words. Her percentage of accuracy was 80% (see Figure 4.8).

**Intervention**

*Teacher five weekly words.* During intervention Student 4 was present for nine of nine generality probes. Student 4 generalized 39 of 39 possible words. Her percentage of accuracy was 100% (see Figure 4.8).
Figure 4.8: Number of weekly sight words read correctly in context for Student 4, 5, and 6. Each word set was assessed once a week. In Baseline students were assessed on five words; in Peer Tutoring students were assessed on ten words. Missing data points indicate student absences.
Five unknown words. During intervention Student 4 was present for nine out of ten possible generality probes across nine weeks (include no teacher instruction week of all unknown words). Student 4 generalized 40 out of 44 possible words. Her percentage of accuracy was 90.9% (see Figure 4.8).

Combined. During intervention Student 4 generalized 79 out of 83 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 95.1% (see Figure 4.8).

Student 5

Baseline

Teacher five weekly words. During baseline Student 5 was present for three of three generality probes. Student 5 generalized 7 out of 7 possible words. His percentage of accuracy was 100% (see Figure 4.8).

Intervention

Teacher five weekly words. During intervention Student 5 was present for three out of five possible generality probes. Student 5 generalized 11 of 11 possible words. His percentage of accuracy was 100% (see Figure 4.8).

Five unknown words. During intervention Student 5 was present for three out of five possible generality probes across three weeks. Student 5 generalized 16 out of 18 possible words. His percentage of accuracy was 88.8% (see Figure 4.8).

Combined. During intervention Student 5 generalized 27 out of 29 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 93.1% (see Figure 4.8).
**Student 6**

*Baseline*

*Teacher five weekly words.* During baseline Student 6 was present for seven of seven generality probes. Student 6 generalized 14 out of 15 possible words. Her percentage of accuracy was 93.3% (see Figure 4.8).

*Intervention*

*Teacher five weekly words.* During intervention Student 6 was present for six of six generality probes. Student 6 generalized 14 of 14 possible words. Her percentage of accuracy was 100% (see Figure 4.8).

*Five unknown words.* During intervention Student 6 was present for seven of seven generality probes across seven weeks (include no teacher instruction week of all unknown words). Student 6 generalized 37 out of 39 possible words. Her percentage of accuracy was 94.8% (see Figure 4.8).

*Combined.* During intervention Student 6 generalized 51 out of 53 possible words from the combined teacher weekly words and unknown words. Her percentage of accuracy was 96.2% (see Figure 4.8).

**Student 7**

*Baseline*

*Teacher five weekly words.* During baseline Student 7 was present for four of four generality probes. Student 7 generalized 5 out of 8 possible words. His percentage of accuracy was 62.5% (see Figure 4.9).
Intervention

*Teacher five weekly words.* During intervention Student 7 was present for nine of nine generality probes. Student 7 generalized 7 out of 9 possible words. His percentage of accuracy was 77.7% (see Figure 4.9).

*Five unknown words.* During intervention Student 7 was present for ten of ten generality probes across ten weeks (include no teacher instruction week of all unknown words). Student 7 generalized 45 out of 54 possible words. His percentage of accuracy was 83.3% (see Figure 4.9).

*Combined.* During intervention Student 7 generalized 52 out of 63 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 82.5% (see Figure 4.9).

**Student 8**

Baseline

*Teacher five weekly words.* During baseline Student 8 was present for six of six generality probes. Student 8 generalized 4 of 4 words. His percentage of accuracy was 100% (see Figure 4.9).

Intervention

*Teacher five weekly words.* During intervention Student 8 was present for seven of seven generality probes. Student 8 generalized one out of one words. His percentage of accuracy was 100% (see Figure 4.9).
Figure 4.9: Number of weekly sight words read correctly in context for Student 7, 8, 9, and 10. Each word set was assessed once a week. In Baseline students were assessed on five words; in Peer Tutoring students were assessed on ten words. Missing data points indicate absences.
*Five unknown words.* During intervention Student 8 was present for eight of eight generality probes across eight weeks (include no teacher instruction week of all unknown words). Student 8 generalized 39 out of 40 possible words. His percentage of accuracy was 97.5% (see Figure 4.9).

*Combined* During intervention Student 8 generalized 40 out of 41 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 97.5% (see Figure 4.9).

*Student 9*

**Baseline**

*Teacher five weekly words.* During baseline Student 9 was present for six out of seven possible generality probes. Student 9 generalized 3 out of 4 possible words. His percentage of accuracy was 75% (see Figure 4.9).

**Intervention**

*Teacher five weekly words.* During intervention Student 9 was present for six of six generality probes. Student 9 generalized two of two words. His percentage of accuracy was 100% (see Figure 4.9).

*Five unknown words.* During intervention Student 9 was present for seven of seven generality probes across seven weeks (include no teacher instruction week of unknown words). Student 9 generalized 39 out of 40 possible words. His percentage of accuracy was 97.5% (see Figure 4.9).

*Combined.* During intervention Student 9 generalized 41 out of 42 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 97.6% (see Figure 4.9).
Student 10

Baseline

*Teacher five weekly words.* During baseline Student 10 was present for seven of seven generality probes. Student 10 generalized 7 of 7 words. His percentage of accuracy was 100% (see Figure 4.9).

**Intervention**

*Teacher five weekly words.* During intervention Student 10 was present for five out of six possible generality probes. Student 10 generalized one of one word. His percentage of accuracy was 100% (see Figure 4.9).

*Five unknown words.* During intervention Student 10 was present for six out of seven possible generality probes across seven weeks (include no teacher instruction week of all unknown words). Student 10 generalized 35 of 35 words. His percentage of accuracy was 100% (see Figure 4.9).

*Combined.* During intervention Student 8 generalized 36 out of 36 possible words from the combined teacher weekly words and unknown words. His percentage of accuracy was 100% (see Figure 4.9).

Group Results

*First Grade Student (Student 1-6)*

Baseline

*Teacher five weekly words.* During baseline First grade students generalized 51 out of 56 possible words. The group percentage of accuracy was 91.1% (see Figure 4.7, 4.8).
*Intervention*

*Teacher five weekly words.* During intervention First grade students generalized 145 out of 154 possible words. The group percentage of accuracy was 94.1% (see Figure 4.7, 4.8).

*Five unknown words.* During intervention First grade students generalized 207 out of 230 possible words. The group percentage of accuracy was 90% (see Figure 4.7, 4.8).

*Combined.* During intervention First grade students generalized 352 out of 384 possible words from the combined teacher weekly words and unknown words. The group percentage of accuracy was 91.6% (see Figure 4.7, 4.8).

*Second Grade Student (Student 7-10)*

*Baseline*

*Teacher five weekly words.* During baseline Second grade students generalized 19 out of 23 possible words. The group percentage of accuracy was 82.6% (see Figure 4.9).

*Intervention*

*Teacher five weekly words.* During intervention Second grade students generalized 11 out of 13 possible words. The group percentage of accuracy was 84.6% (see Figure 4.9).

*Five unknown words.* During intervention Second grade students generalized 158 out of 169 possible words. The group percentage of accuracy was 93.4% (see Figure 4.9).

*Combined.* During intervention First grade students generalized 169 out of 182 possible words from the combined teacher weekly words and unknown words. The group percentage of accuracy was 92.8% (see Figure 4.9).
<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>Peer Tutoring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Words Generalized/ Possible</td>
<td>Percentage of Words Generalized %</td>
</tr>
<tr>
<td>Student 1</td>
<td>0/10</td>
<td>0%</td>
</tr>
<tr>
<td>Student 2</td>
<td>8/8</td>
<td>100%</td>
</tr>
<tr>
<td>Student 3</td>
<td>18/21</td>
<td>85.7%</td>
</tr>
<tr>
<td>Student 4</td>
<td>4/5</td>
<td>80%</td>
</tr>
<tr>
<td>Student 5</td>
<td>7/7</td>
<td>100%</td>
</tr>
<tr>
<td>Student 6</td>
<td>14/15</td>
<td>93.3%</td>
</tr>
<tr>
<td>Student 7</td>
<td>5/8</td>
<td>62.5%</td>
</tr>
<tr>
<td>Student 8</td>
<td>4/4</td>
<td>100%</td>
</tr>
<tr>
<td>Student 9</td>
<td>3/4</td>
<td>75%</td>
</tr>
<tr>
<td>Student 10</td>
<td>7/7</td>
<td>100%</td>
</tr>
<tr>
<td>1st graders</td>
<td>51/56</td>
<td>91.1%</td>
</tr>
<tr>
<td>2nd graders</td>
<td>19/23</td>
<td>82.6%</td>
</tr>
</tbody>
</table>

Note:  First grade students (Student 1 through 6)
Second grade students (Students 7 through 10)

Table 4.3: Number of “teacher five weekly words” generalized across conditions.
<table>
<thead>
<tr>
<th>Student</th>
<th>Learned</th>
<th>Maintained</th>
<th>Generalized</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Words/Possible</td>
<td>Percentage Learned</td>
<td># of Words/Possible</td>
</tr>
<tr>
<td>Student 1</td>
<td>51/55</td>
<td>92.7%</td>
<td>34/51</td>
</tr>
<tr>
<td>Student 2</td>
<td>44/45</td>
<td>97.7%</td>
<td>37/39</td>
</tr>
<tr>
<td>Student 3</td>
<td>39/40</td>
<td>97.5%</td>
<td>33/39</td>
</tr>
<tr>
<td>Student 4</td>
<td>53/55</td>
<td>96.3%</td>
<td>34/48</td>
</tr>
<tr>
<td>Student 5</td>
<td>23/25</td>
<td>92%</td>
<td>12/15</td>
</tr>
<tr>
<td>Student 6</td>
<td>39/40</td>
<td>97.5</td>
<td>36/39</td>
</tr>
<tr>
<td>Student 7</td>
<td>54/55</td>
<td>98.1%</td>
<td>47/54</td>
</tr>
<tr>
<td>Student 8</td>
<td>45/45</td>
<td>100%</td>
<td>43/45</td>
</tr>
<tr>
<td>Student 9</td>
<td>40/40</td>
<td>100%</td>
<td>35/40</td>
</tr>
<tr>
<td>Student 10</td>
<td>40/40</td>
<td>100%</td>
<td>35/35</td>
</tr>
<tr>
<td>1st graders</td>
<td>249/260</td>
<td>95.7%</td>
<td>186/231</td>
</tr>
<tr>
<td>2nd graders</td>
<td>179/180</td>
<td>99.4%</td>
<td>160/174</td>
</tr>
</tbody>
</table>

Note:  First grade students (Student 1 through 6)
Second grade students (Students 7 through 10)

Table 4.4: Number of “five unknown words” learned, maintained, and generalized in the Peer Tutoring condition.
Pretest and Posttest Results

Student 1

_Slosson Oral Reading Test (SORT-R)._ Student 1 scored on the SORT-R, a grade equivalent score, of .2 in the pretest and scored .5 in the posttest. The two tests were administered approximately three months apart with only 10 weeks of intervention (see Table 4.5).

_Teacher’s Word List._ Student 1 correctly identified an average of 21.6% of the words correctly at pretest and 55.6% of the words on the posttest representing a 156.5% increase (see Table 4.6).

Student 2

_Slosson Oral Reading Test (SORT-R)._ Student 2 scored on the SORT-R, a grade equivalent score, of .3 in the pretest and scored 1.0 in the posttest. The two tests were administered approximately three months apart with only 8 weeks of intervention (see Table 4.5).

_Teacher’s Word List._ Student 2 correctly identified an average of 45.2% of the words correctly at pretest and 88.6% of the words on the posttest representing a 95.8% increase (see Table 4.6).

Student 3

_Slosson Oral Reading Test (SORT-R)._ Student 3 scored on the SORT-R, a grade equivalent score, of .3 in the pretest and scored 1.2 in the posttest. The two tests were administered approximately three months apart with only 7 weeks of intervention (see Table 4.5).
Teacher’s Word List. Student 3 correctly identified an average of 31.1% of the words correctly at pretest and 88.6% of the words on the posttest representing a 184.8% increase (see Table 4.6).

Student 4

Slosson Oral Reading Test (SORT-R). Student 4 scored on the SORT-R, a grade equivalent score, of .2 in the pretest and scored .4 in the posttest. The two tests were administered approximately three months apart with only 10 weeks of intervention (see Table 4.5).

Teacher’s Word List. Student 4 correctly identified an average of 14.1% of the words correctly at pretest and 55.6% of the words on the posttest representing a 293.3% increase (see Table 4.6).

Student 5

Slosson Oral Reading Test (SORT-R). Student 5 scored on the SORT-R, a grade equivalent score, of .5 in the pretest. Student 5 moved from the school without prior notice, therefore, the posttest was not administered (see Table 4.5).

Teacher’s Word List. Student 5 correctly identified an average of 51.8% of the words correctly at pretest. Student 5 moved from the school without prior notice, therefore, the posttest was not administered (see Table 4.6).

Student 6

Slosson Oral Reading Test (SORT-R). Student 6 scored on the SORT-R, a grade equivalent score, of .5 in the pretest and scored 1.3 in the posttest. The two tests were administered approximately three months apart with only 7 weeks of intervention (see Table 4.5).
Teacher’s Word List. Student 6 correctly identified an average of 69.8% of the words correctly at pretest and 93.3% of the words on the posttest representing a 33.7% increase (see Table 4.6).

Student 7

Slosson Oral Reading Test (SORT-R). Student 7 scored on the SORT-R, a grade equivalent score, of .7 in the pretest and scored 1.3 in the posttest. The two tests were administered approximately three months apart with only 10 weeks of intervention (see Table 4.5).

Teacher’s Word List. Student 7 correctly identified an average of 47.1% of the words correctly at pretest and 87.4% of the words on the posttest representing an 85.9% increase (see Table 4.6).

Student 8

Slosson Oral Reading Test (SORT-R). Student 8 scored on the SORT-R, a grade equivalent score, of 1.5 in the pretest and scored 2.5 in the posttest. The two tests were administered approximately three months apart with only 8 weeks of intervention (see Table 4.5).

Teacher’s Word List. Student 8 correctly identified an average of 74.1% of the words correctly at pretest and 97.3% of the words on the posttest representing a 31.2% increase (see Table 4.6).

Student 9

Slosson Oral Reading Test (SORT-R). Student 9 scored on the SORT-R, a grade equivalent score, of 1.1 in the pretest and scored 2.1 in the posttest. The two tests were
administered approximately three months apart with only 7 weeks of intervention (see Table 4.5).

Teacher’s Word List. Student 9 correctly identified an average of 72.8% of the words correctly at pretest and 95.3% of the words on the posttest representing a 30.9% increase (see Table 4.6).

Student 10

Slosson Oral Reading Test (SORT-R). Student 10 scored on the SORT-R, a grade equivalent score, of 1.3 in the pretest and scored 1.9 in the posttest. The two tests were administered approximately three months apart with only seven weeks of intervention (see Table 4.5).

Teacher’s Word List. Student 10 correctly identified an average of 68.2% of the words correctly at pretest and 96.1% of the words on the posttest representing a 40.7% increase (see Table 4.6).

Group Results

First Grade Students (Student 1-6)

Slosson Oral Reading Test (SORT-R). First grade students scored on the SORT-R, a grade equivalent score, an average score of .3 in the pretest and an average score of .8 in the posttest. The two tests were administered approximately three months apart with only seven to ten weeks of intervention (see Table 4.5).

Teacher’s Word List. First grade students correctly identified an average of 36.4% of the words correctly at pretest and 76.4% of the words on the posttest representing a 109.8% increase (see Table 4.6).

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Second Grade Students (Student7-10)

*Slosson Oral Reading Test (SORT-R).* Second grade students scored on the SORT-R, a grade equivalent score, an average score of 1.1 in the pretest and an average score of 1.9 in the posttest. The two tests were administered approximately three months apart with only seven to ten weeks of intervention (see Table 4.5).

*Teacher’s Word List.* Second grade students correctly identified an average of 74.7% of the words correctly at pretest and 94.1% of the words on the posttest representing a 43.4% increase (see Table 4.6).
<table>
<thead>
<tr>
<th>Student</th>
<th>Grade</th>
<th>Slosson’s Raw Score</th>
<th>Grade Equiv.</th>
<th>Age Equiv.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre 1/15/03</td>
<td>Post 5/20/03</td>
<td>Pre</td>
</tr>
<tr>
<td>Student 1</td>
<td>First</td>
<td>7</td>
<td>18</td>
<td>.2</td>
</tr>
<tr>
<td>* Student 2</td>
<td>First</td>
<td>12</td>
<td>28</td>
<td>.3</td>
</tr>
<tr>
<td>Student 3</td>
<td>First</td>
<td>10</td>
<td>33</td>
<td>.3</td>
</tr>
<tr>
<td>** Student 4</td>
<td>First</td>
<td>6</td>
<td>15</td>
<td>.2</td>
</tr>
<tr>
<td>Student 5</td>
<td>First</td>
<td>18</td>
<td>NA</td>
<td>.5</td>
</tr>
<tr>
<td>Student 6</td>
<td>First</td>
<td>19</td>
<td>36</td>
<td>.5</td>
</tr>
<tr>
<td>Student 7</td>
<td>Second</td>
<td>22</td>
<td>36</td>
<td>.7</td>
</tr>
<tr>
<td>Student 8</td>
<td>Second</td>
<td>41</td>
<td>66</td>
<td>1.5</td>
</tr>
<tr>
<td>Student 9</td>
<td>Second</td>
<td>30</td>
<td>58</td>
<td>1.1</td>
</tr>
<tr>
<td>Student 10</td>
<td>Second</td>
<td>36</td>
<td>51</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Note:  First grade students (Student 1 through 6)
Second grade students (Students 7 through 10).
* pretest 2/20/03
** pretest 1/29/03
NA = Moved out of state.
1 Standard score by grade level is 100
2 Standard score by age level is 100

Table 4.5: Pre- and Posttest results on Slosson Oral Reading Test across participants.
<table>
<thead>
<tr>
<th>Student</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Percentage of the Increase %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Words/ Possible</td>
<td>Percentage of Accuracy %</td>
<td># of Words/ Possible</td>
</tr>
<tr>
<td>Student 1</td>
<td>23/106</td>
<td>21.6</td>
<td>59/106</td>
</tr>
<tr>
<td>Student 2</td>
<td>48/106</td>
<td>45.2</td>
<td>94/106</td>
</tr>
<tr>
<td>Student 3</td>
<td>33/106</td>
<td>31.1</td>
<td>94/106</td>
</tr>
<tr>
<td>Student 4</td>
<td>15/106</td>
<td>14.1</td>
<td>59/106</td>
</tr>
<tr>
<td>Student 5</td>
<td>55/106</td>
<td>51.8</td>
<td>NA</td>
</tr>
<tr>
<td>Student 6</td>
<td>74/106</td>
<td>69.8</td>
<td>99/106</td>
</tr>
<tr>
<td>Student 7</td>
<td>71/151</td>
<td>47.1</td>
<td>132/151</td>
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<td>Student 8</td>
<td>112/151</td>
<td>74.1</td>
<td>147/151</td>
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<tr>
<td>Student 9</td>
<td>110/151</td>
<td>72.8</td>
<td>144/151</td>
</tr>
<tr>
<td>Student 10</td>
<td>103/151</td>
<td>68.2</td>
<td>145/151</td>
</tr>
<tr>
<td>1st graders</td>
<td>*193/530</td>
<td>36.4</td>
<td>405/530</td>
</tr>
<tr>
<td>2nd graders</td>
<td>396/604</td>
<td>74.7</td>
<td>568/604</td>
</tr>
</tbody>
</table>

Note:  First grade students (Student 1 through 6)
Second grade students (Students 7 through 10).
NA= Moved out of state.
* The pretest for Student 5 was not counted.

Table 4.6: Pre- and Posttest results on teacher’s word list across participants.
Participants Satisfaction Questionnaire

Using a questionnaire format, nine participants were asked nine questions about their opinions of the peer tutoring program. One participant from first grade moved out of the school before the study was ended and without a prior notice. A summary of their responses are presented below.

Questions

1. How did you like peer tutoring?

   All the participants responded in a positive way. Three participants said that it is great; two said that it is fun; two said it is fine, and two said that they like it a lot.

2. What is the best part of peer tutoring? Why?

   Most of the participants said that they liked testing as their favorite part of peer tutoring activity. A couple of the participants mentioned they liked being the tutor and one mentioned that she liked the folder.

3. What part of peer tutoring does you like the least? Why?

   Most of the participants mentioned that they did not like being tutees because they wanted to stay tutors. Couple of the participants mentioned that they did not like testing because they did not want to get wrong words. One participant mentioned that he did not like the five minutes practice (tutor huddle).

4. Would you rather have peer tutoring or be in a group that works with the teacher to learn the words?

   All of the participants mentioned that they prefer peer tutoring and learning with friends over learning words with the teacher.
5. *Do you think you learn more words from peer tutoring? Why?*

Most of the participants said yes, they learn more words except one participant said sometimes.

6. *Do you think the rewards help you to learn more? Why?*

All of the participants said that rewards helped them learn more words because they make them do their best, and do better next time to get more treats. One student said that the rewards help him think.

7. *What would you change about peer tutoring if you were in charge? Why?*

All the participants who responded to this question said not to change anything about the peer tutoring program.

8. *Would you like to continue peer tutoring (next year)? Why?*

All the participants reported that they would like to continue with peer tutoring next year. They said that the reason is because they learn more words; it is fun, and one participants mentioned that he like to get treats.

9. *Is there anything else you would like to tell me about peer tutoring?*

All the participants reported that they do not have anything else to add.

*Teachers Satisfaction Questionnaire*

Using a questionnaire format, three teachers were asked ten questions about their opinions of the peer tutoring program. Two teachers are first grade teachers and one second grade teacher. A summary of their responses are presented below.
Questions

1. Do you think sight word recognition performance is an important skill and students need to have the competency in order to perform well later in life?

   All the teachers responded with yes “It is skill that students need acknowledging that sight words recognition is a key component in early reading strategies”.

2. Did you notice positive changes in the targeted students’ reading skills after the implementation of the peer tutoring program?

   First grade teachers said that the majority of the students showed a recognizable growth in reading. The second grade teacher said that the students showed some positive change.

3. Do you think peer tutoring helped students to generalize sight word recognition skill (i.e., reading the sight word in a context)?

   First grade teachers and second grade teacher responded to this question “same as question number 2”.

4. Do you think reward system is appropriate to promote students’ academic and social performance?

   First grade teachers responded with that the reward system is a good motivator, acknowledging that the positive reinforcement was very beneficial. The second grade teacher responded with “sometimes”.

5. Did the students like the reward system that was implemented in this study?

   All the teachers said yes, students enjoyed the rewards.

6. Will you recommend students’ participation in such a project in the future?
All of the teachers said yes, they would recommend this project in the future.

7. *Did the students like being pulled out to participate in the peer tutoring sessions?*

All the teachers said yes, the students were eager to be pulled out and participate in peer tutoring sessions. They added that the time that was allocated to the peer tutoring sessions was a good time as the students did not miss class instructional time.

8. *Did you enjoy participating in this research project?*

All the teachers responded with yes. The first grade teachers added that they enjoyed watching students’ growth, self-confidence, and their eagerness during the reading groups.

9. *What did you not like about this project?*

The second grade teacher said that students missed other activities. The first grade teachers said that although the time was good for the sessions, the students who were late in the mornings missed some instructional time.

10. *Have the students benefited from peer tutoring in areas other than in reading?*

First grade teachers said that the children benefited in their oral communication skills, listening skills, following directions, and some improved in their writing skills.

*Parents Satisfaction Questionnaire*

Using a questionnaire format, parents were asked about their opinions of the peer tutoring program. The questionnaire consisted of eight items. For items 1 through 7, the parents were asked to indicate the extent to which they agree or disagree with each
statement. For item 8, they were asked to write down any additional responses they wish to share. Four out of nine parents responded to the questionnaire. A summary of their responses are presented below.

Questions

1. At the beginning of the school year, I felt that my child needed some additional help to become a good reader at school.

   All the parents responded with “strongly agree”.

2. I feel the peer tutoring program helped my child to become a better reader.

   All the parents responded with “strongly agree”.

3. I feel the peer-tutoring program is appropriate and beneficial for my child to use at school.

   All the parents responded with “strongly agree”.

4. I would like my child to continue participating in the peer tutoring program at school.

   All the parents responded with “strongly agree”.

5. My child talked about the peer-tutoring program at home in a positive way.

   All the parents responded with “strongly agree”.

6. My child talked about the rewards from the peer tutoring program at home in a positive way.

   All the parents responded with “strongly agree”.

7. I am glad my child participated in the peer tutoring program.

   All the parents responded with “strongly agree”.

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8. *ease feel free to share any additional comments you may have about your child’s participation in the peer tutoring program.*

Three of the parents added additional comments. They indicated that their children benefited a lot from the peer tutoring. They also mentioned that spelling and reading skills had improved comparing to the beginning of the year. In addition, the children are now more confident with their reading skills and they see reading as fun activity.
CHAPTER 5

DISCUSSION

This Chapter discusses the results of the study, the implications for practice, limitations of the study, directions for future research and conclusions that can be drawn from the data.

Research Questions

Research Question 1: What effect will reciprocal peer tutoring have on the learning of high frequency sight words for low-achieving urban first- and second-grade students?

First grade participants. The results of this study showed a functional relationship between peer tutoring and the learning of high frequency sight words for first grade students. The findings of this study is consistent with other peer tutoring research demonstrating it as an effective strategy for the learning of high frequency sight words (Greenwood et al, 2001; Barbetta & Miller, 1991; Heron, et al. 1983), and particularly for low-achieving students (Neubauer, 2002; Cochran, et al., 1993). The data obtained from this study indicated that first grade students learned a greater number of high frequency sight words during the peer tutoring condition than during baseline.

Although some variability is noted, students consistently performed better under peer tutoring conditions with higher overall word mastery scores and greater performance
stability. Some of the variability in words learned was caused by the variance in the number of teacher weekly words that each student already knew each week. The more words the student already knew the fewer words were there for the student to learn that week. During baseline the students were instructed on the “teacher five weekly words”, as a group the percentage of words learned during baseline was 57.4% during peer tutoring condition this percentage improved to 97.7% indicating an increase of 40.3% words.

The results of this study demonstrated the ability of the students to learn more than five words a week using an effective strategy such as peer tutoring. During baseline condition students were instructed on five words compared to ten words in the peer tutoring condition. First grade students were able to learn additional unknown words every week during peer tutoring. As a group, first grade students learned a percentage of 95.7% of the unknown words that were instructed. This information suggests strongly that first grade students, who are considered as academically at-risk, are able to learn more than five words a week using a high response and high accuracy intervention such as peer tutoring.

An important issue is the lack of weekly pre-assessments conducted by the teachers. Teachers did not conduct an assessment of the weekly words before instructing them to students. Teachers assumed that the students did not know these words. Data analyses of the weekly pretests conducted by the experimenter throughout the study showed that most of first graders knew at least one word out of the “five teacher weekly words” in every week throughout the study. The percentage of the five teacher’s weekly sight words read correctly by first grade participants prior to any instruction took place
was 14.5% during baseline and 16.1% during peer tutoring. It is worth noting here that Student 6 had the highest scores on the weekly pretests during both conditions baseline and peer tutoring. During baseline she read correctly 30% of the words that were instructed, during peer tutoring she read correctly 53.3% of the words that were instructed. A critical piece of successful teaching is to pretest students on the instructional material that they would be instructed on. Although additional instruction on already known information is warranted, students who are considered at-risk of academic failure need to be engaged in a challenging and speeded-up curriculum (Levin, 1988; Slavin et al., 1989).

Data analyses show that Students 2, 3, and 4 made the greatest gains on Slosson’s Oral Reading test with increases of .6, .8, and .7 respectively, on grade equivalence measure. This is particularly noteworthy for Student 3 who began the study knowing fewer sight words than all except two of her peers. On the other hand, Student 1, 3, and 4 made the greatest gain on the teacher word list, that was used as pre- and post-test, with increases of 156.5%, 184.8%, and 293.3% respectively. This is particularly significant for Student 4 who began the study knowing fewer sight words than all participants. She achieved the greatest percentage gain with score showing mastery of more than 55% of high frequency words. The smallest gains occurred with Students 6, for whom there may have been a ceiling effect for her performance, since she began the study with the highest pretest scores on the teacher word list.

Although all of the first graders showed progress, the progress of some of the participants was greater than others. For example, Student 1 made the greatest gains compared to other participants. During baseline he did not learn any words, while during
peer tutoring he read correctly 95.4% of the words that were instructed. In general, participants who read the lowest percentages of words read correctly during baseline made greater gains (i.e., Students 1, 2, 4) than students who had relatively better percentages of words read correctly during baseline (i.e., Students 3, 5, 6). One explanation for this is a ceiling effect. Higher student accuracy during baseline means a diminished opportunity to show improvement during intervention. If we compared only students’ performances on the teacher’s five weekly words across baseline and intervention conditions, as this variable was constant during both conditions, Students 1, 2, and 4 still made the greatest gains. Their gains were 95.4%, 42.9%, and 62% respectively as opposed to the gains made by Students 3, 5, and 6, which were 14.9%, 22.3%, and 38.1% respectively.

*Second grade participants.* The overall results of the study did not show a functional relationship between peer tutoring and the learning of high frequency sight words for second graders as a group. However, all four second graders made noticeable gains on the posttests that were administered at the end of the study. For example, the gains on Slosson Oral Reading Test as measured by the grade equivalent were .5, .9, .9, and .5 for Student 7, 8, 9, and 10 respectively. That is, for example, .9 gain represents a growth of one full academic year when the academic year equals 9 months.

One reason that the study did not reveal a functional relationship is because of a ceiling effect that was obvious across conditions and across students. Although their teacher identified these second grade students as low achievers and academically at-risk, most of them knew all of the teacher five weekly words before any instruction took place (i.e., Students 8, 9, and 10). It is worth noting here that second grade participants had
experience with peer tutoring in the previous academic year where they practiced first
grade high frequency sight words twice a week for three months. All of them learned
more words during peer tutoring than during teacher instruction alone. They maintained
their skills as tutors and did not take much time to be trained. They were eager to be
involved in the peer tutoring activity.

As a group, second grade participants read correctly 88.7% of the teacher weekly
words that during baseline before any instruction took place. This left less than 12% of
the words to be learned. In peer tutoring condition, second grade participants read
correctly 90.3% of the teacher weekly words before any instruction took place. Except
for Student 7 who made the greatest gains on the teacher word list tests comparing to his
peers, it is worth noting that he began the study knowing fewer sight words than all of his
peers. In the pretest he knew 47.1% of the teacher word list, while in the posttest he knew
87.4% of the words representing an increase of 85.9%. As mentioned earlier, the lack of
weekly pretests might impact the instructions’ outcomes when teachers leave behind an
essential piece of successful teaching. Without systematic assessment of students,
teachers could make inaccurate assumptions. One, teachers may assume that students do
not know information that in reality they do know. The result is using classroom time
and educational materials to instruct already known information. Two, the teachers may
assume that the students know information that the students do not know. Three, by only
using posttests teachers may assume that their instruction is more effective than it is in
reality.

This study demonstrated the ability of the students to learn more unknown sight
words every week using peer tutoring instruction alone. For example, out of the
additional five unknown weekly words that was introduced and instructed to the students during peer tutoring condition, second grade participants read correctly 95.7% of the words. This demonstrates that these students could be further challenged academically and that valuable educational resources are being lost on already known sight words. The teacher did not pre-test students before teaching high frequency sight words and she assumed that students did not know the words that she instructed. Teachers in urban schools tend to believe that some students cannot learn, and so they hold low expectations for them (Goodlad, 1990). During the last decade, research on successful programs for students at risk of academic failure has clearly demonstrated that high expectations, with parallel support, is a critical factor in decreasing the number of students who drop out of school and in increasing the number of youth who go on to college (Mehan et al., 1994).

Levin's Accelerated Schools Program and Slavin's Success for All project demonstrated that engaging low-achieving students in a challenging, speeded-up (as opposed to a slowed-down, remedial) curriculum produces positive academic and social outcomes (Levin, 1988; Slavin et al., 1989).

All students. The study began the second semester of the school year. The students had already been in school one full semester. The pre- and post-tests results showed that some students learned more words in the seven to ten weeks of peer tutoring than they learned in previous full semester of traditional classroom instruction. For example, on the pretest Student 1, 3, and 4 read correctly 21.6%, 31.6%, and 14.1% respectively of the teacher sight word list, while on the posttest they read correctly 55.6%, 88.6%, and 55.6% of the same list respectively. Their gains were 34%, 57.5%,
and 41.5% respectively which shows that they learned more words from the teacher word list during the duration of the study than they did in more than one full semester of traditional classroom instruction. It is worth mentioning here that Student 1 and 4 had ten weeks of peer tutoring, while Student 3 had only seven weeks of peer tutoring. Although the duration of the intervention was short (seven to ten weeks), the overall results of this study showed that the participants, especially first graders, learned more words with peer tutoring. This suggests that such an intervention, when used continuously over time throughout the school year, could have a cumulative effect and students could show more improvement in reading. The more words the student can read the more reading materials the student can read and comprehend. It is well documented that knowing sight words is essential for successful reading. It helps students avoid the frustration in reading and consequently help build self-confidence and make reading more fun. Parents and teachers have both mentioned that students are enjoying reading and find it more fun. Moreover, if children can read words quickly and easily, their reading comprehension will improve significantly (Tan & Nicholson, 1997).

Research Question 2: What effect will reciprocal peer tutoring have on the maintenance of high frequency sight words for low-achieving urban first- and second-grade students?

First grade participants. The finding of the study also showed that peer tutoring facilitated the retention of sight words as measured one week after the words were instructed. As a group, the students’ maintenance scores showed greater retention during peer tutoring than during baseline. These findings are found to be consistent with other studies that examined the effect of peer tutoring on retention (Neubauer, 2002; Barbetta & Miller, 1991). When comparing the retention of the five teacher’s weekly words read
correctly across baseline and peer tutoring condition we find that, during baseline the first
grade students as a group maintained 68.1% of the words that were read correctly a week
before as opposed to 81.1% of the words read correctly during peer tutoring condition
that is an increase of 13%. However, there was some variability among students’ gains.
For example, Student 1 made the greatest gain and Student 5 the lowest, 59.1% and 0%
respectively. This wide range can be explained by the ceiling effect, Student 5 already
maintained all the words that he learned during baseline and he also maintained all the
words he learned during intervention. However, Student 5 was present for only three
maintenance probes during baseline and three maintenance probes during intervention.
The data points might not be enough to show a functional relationship. Student 1, on the
other hand, did not learn any word during baseline while during peer tutoring he did learn
and maintain a considerable number of words. In addition, First grade participants as a
group were able to maintained 80.5% of the unknown words that were read correctly in
the previous week during peer tutoring condition alone without the teacher instruction.
This strongly suggests the positive effects of peer tutoring as an instructional strategy on
the retention of high frequency sight words.

The data analyses showed that there are some factors that might affect certain
students’ retention. Throughout the study the retention was assessed one week after the
words were instructed, however, after the Spring break week the retention was assessed
for the words that were instructed two weeks earlier (Week 11 of the study). For most of
the first grade participants, they were able to maintain most of the words they learned
except for Student 4 who maintained only 3 words out of 10 words that were read
correctly two weeks earlier. Student 4 began the study with the lowest score on the
pretests, this might suggest that some low-achieving students need frequent practice time and additional repetition to over-learn information in order to maintain it.

*Second grade participants.* The findings of the study did not show a functional relationship between peer tutoring and maintenance of high frequency sight words for second grade students. An explanation for that might be the ceiling effect that was obvious across conditions and across students. Although second grade students were identified by their teacher as low achievers and academically at-risk, most of them knew all of the teacher five weekly words before any instruction took place. If the teacher identified low achievers knew the teacher five weekly words prior to instruction there is a strong likelihood that other children in the class also knew the five selected words.

During baseline the students were instructed on the teacher five weekly words, second grade participants as a group maintained 86.6% of the words read correctly. During intervention, second grade participants maintained 92.3% of the five teacher weekly words that read correctly. The result is a tremendous loss of instructional time on reviewing previously known information. Given the achievement gap between urban school students and suburban students this type of educational planning could have the destructive effect of increasing the achievement gap. This study’s findings revealed the ability of the students to learn and maintain more than five words a week. The percentage of the additional five unknown words maintained during peer tutoring condition for second grade participants as a group was 91.9 words.

The results of the study demonstrated the academically at-risk students’ ability to learn and maintain more than five words per week. By maintaining the learned words the students will have more words in their repertoires that should facilitate improved reading
skills. In this study the maintenance scores might be higher if the students had more learning trials and practiced the words more frequently.

Once again, student achievement may be negatively impacted by teacher’s low expectations. The professional literature addresses the necessity of high expectations that challenge students to greater achievement.

*Research Question 3: What effect will reciprocal peer tutoring have on the generalization of high frequency sight words for low-achieving urban first- and second-grade students?*

*First grade participants.* The overall results of the study showed that peer tutoring promotes and facilitate word generalization for first grade participants. These findings are consistent with pervious research that demonstrated the effectiveness of peer tutoring on facilitating the generalization of sight words learned by reading them within sentences (Barbetta & Miller, 1991). Barbetta and Miller (1991) conducted a study where they investigated the effectiveness of a cross-age tutoring program on the learning, generality, and maintenance of sight words. The participants were six elementary tutees and their high school tutors participated in a 6-week investigation. The findings of the study indicated that all students learned and maintained a substantial number of new sight words during the tutoring condition as opposed to baseline. Furthermore, the results demonstrated the ability of the students to generalize the learned words when they were able to read the words within sentences.

As a group, first grade participants’ generalization scores were greater during peer tutoring than during baseline. When comparing the generalization of the five teacher weekly words across baseline and peer tutoring conditions we find that, during baseline the first grade students as a group generalized 91.1% of the words read correctly as
opposed to 94.1% of the words read correctly during the peer tutoring condition a modest increase of 3%. In addition, first grade participants as a group were able to generalize 90% of the additional unknown words that read correctly during peer tutoring condition. This strongly suggests the positive effects of peer tutoring as an instructional strategy that promotes the generalization of high frequency sight words.

Student 1 and Student 4 made the greatest gains in the number of words generalized. Student 1 did not learn any word during baseline therefore he had none to generalize. During the peer tutoring condition he generalized 84.1% of the words that he learned. He also was able to generalize 88.4% of the additional unknown words that were read correctly. Student 4, on the other hand, generalized 80% of the teacher five weekly words during baseline as opposed to 100% words during peer tutoring condition. She also was able to generalize 90.9% of the additional unknown words that were read correctly with peer tutoring alone and without teacher’s instruction. It is worth pointing out that both Students 1 and 4 began the study with the fewer words and had the lowest scores on all measures. Both students missed several sessions during both study conditions. The results suggest that these students were able to improve academically if effective instruction was implemented.

Second grade participants. The results of this study also did not show a functional relationship between peer tutoring and generalization of the words learned for second grade participants. The same explanation that was mentioned earlier could be applied here as well which is the ceiling effect that was obvious across conditions and across students. Although second grade students were identified by their teacher as low achievers and academically at-risk, most of them knew all of the teacher five weekly words before any
instruction took place. During baseline students were instructed on the teacher five weekly words, second grade participants as a group generalized 82.6% of the words that were read correctly. During intervention, second grade participants generalized 84.6% of the five teacher weekly words that were read correctly. However, the findings revealed the ability of the students to learn, maintain, and generalize more than five words a week. The percentage of the additional five unknown words generalized during peer tutoring condition for second grade participants as a group was 93.4% words per week.

An interesting finding is that the number of words generalized by most of the participants was relatively greater that the number of words that were maintained. That was the case across teacher’s five weekly words and the unknown words. A possible explanation for this is that seeing the word in a context helped the students in reading the word. The context usually has clues that facilitate word identification skills. In the maintenance probes participants were asked to read the words in isolation.

The results of the study demonstrated the ability of the students who were identified as academically at-risk to learn, maintain, and generalize more than five unknown words per week with peer tutoring alone and without teacher’s instruction. Same argument can be made here and that is teachers are not challenging students academically at the time the literature revealed the necessity of high expectations that should be reflected in a challenge and speeded-up curriculum using the appropriate high response teaching interventions such as peer tutoring.

Ideally, participants should be trained to generalize skills to new situations (Cooper, et al, 1987), but due to time limitation of this study, participants were given sentences to read without any generalization training in both conditions. Despite that, the
overall results showed that the participants were able to generalize and identify more words in sentences during peer tutoring than they did during baseline. Generality is of critical importance, and the generality of behavior change should be a part of any intervention. Students should be able to transfer new skills they learn to other situations to improve their overall school performance. In a classroom setting, teachers could promote generality of learned words by including them in a variety of texts (e.g. expository, spelling lists, etc.).

Research Question 4: What are the opinions of the student participants of first- and second-grade about peer tutoring for reading high frequency sight words?

All the students stated that they liked and enjoyed the peer tutoring activity. Most of the participants mentioned testing as their favorite part of the peer tutoring activity. It was noticed during the peer tutoring condition that most of the participants were eager to start the testing part. Regarding the least favorite part of peer tutoring activity, there was variability in the responses. The majority of the participants said that being the tutee as their least favorite part of the study.

During peer tutoring condition it was noticed that most of the participants like being the tutor more. This might be because the tutor role is different than their traditional role as learners in class. In addition, the students might have enjoyed playing the role of teacher. It is interesting to note that some students, such as Student 1, 3, and 6, were very shy during baseline condition and they talked in a very low voice tone show a great personality during peer tutoring condition and demonstrated excellent tutor skills. All participants preferred peer tutoring compared to the traditional way with the teacher instructed the words. Their responses also reflect the effectiveness of the reward system.
that was part from the peer tutoring package in motivate learning. Finally, all the participants mentioned that they would like to continue with peer tutoring activity next year.

**Research Question 5: What are the opinions of parents of student participants of first- and second-grade about peer tutoring for reading high frequency sight words?**

Only four of the parents responded to the questionnaire despite the three attempts to obtain parents’ responses. First, the questionnaires were sent to them with their children twice, each time one week apart. Second, the parent liaison teacher took the responsibility of calling the parents and obtains their responses over the phone. The parents who responded said that they noticed improvements on their children’s reading and spelling. They also wanted their children to continue with the peer tutoring activity next year. Finally and most importantly they noticed that their children are more confident with their selves and see reading as a fun activity.

**Research Question 6: What are the opinions of teachers of first- and second-grade about peer tutoring for reading high frequency sight words?**

First grade teachers mentioned that most of first grade participants showed a noticeable growth in reading. However, the second grade teacher stated that she noticed some improvement, the reason for that might be that the students already knew most of the words she was teaching limiting the room for improvement and decreasing the possibility for significant improvement. All teachers acknowledged the benefits of the reward system and all of them mentioned that the students’ attitude toward reading improved and their self-confident increased as well. All teachers wanted to continue with peer tutoring activity next year.
Although all teachers agree to participate in the study, they were skeptical regarding the benefits of this intervention. Hence, by the end of the study teachers saw their students’ improvement and they acknowledge the benefits of peer tutoring activity especially first grade teachers. An explanation for that could be that most of first grade participants started the study with a limited number of sight words and were lacking the reading skills in general, however, throughout peer tutoring activity and by the end of the study all of the first grade participants showed improvements with their reading skills and they were able to generalize the skill.

Limitation of the Study

Several limitations were noted for this study. The first limitation is pertaining to time frame and duration of the study. The Peer Tutoring intervention took place over a relatively short period of time, in terms of both the number of weeks that ranged between 7 to 10 weeks as well as the amount of time students spent engaged in peer tutoring on a weekly basis. Tutoring sessions only occurred three times per week while it is recommended that tutoring sessions occur 4 to 5 days during the week, for 30 minutes each to achieve the maximum benefits to students involved (Arreaga-Mayer, 1998). This would led the students to benefited academically from the additional practice time for each word set (i.e., from increased active student responding). It can be speculated that greater gains may have resulted had students spent more time in peer tutoring activities.

The study began in February and ended with the school year. Toward the end of the school year there are more activities and less structured school time as participants and teachers are prepared for summer. It is uncertain what kind of effect conducting the study toward the end of the school year had on the data. Starting earlier in the school year
and increasing the duration of the study would have increased the amount data allowed a more thorough examination of participants’ long term sight word performances.

Another limitation is the short baseline for Students 1, 2, and 5, that was due to late participation in the study for Students 2 and 5 because they moved to the school later in the second semester. Student 2, however, moved out of the school shortly after we started collecting the baseline data and then removed back to the school after two weeks.

Some of the conditions that were noticed to affect the performances of participants were related to environmental factors. For example, the Monday immediately came after time changed, setting the time one hour ahead, for that particular session most of the first graders were sleepy and tired. Student 2, 3, 4, and 6 for example, read correctly three words out of ten possible words for that session. That was the only time that they scored that low. Such information could be helpful for teachers when planning instructional activities in such a situation.

A major limitation for this study (especially with second graders) was the five teacher weekly words that the students already knew. With the second grade participants, no functional relationship was found and the ceiling effect was predicted. One way to deal with this limitation was to add additional five unknown words from an advanced grade level. This limited our ability to compare students’ performance in the peer tutoring condition to their performance in the baseline condition. However, this issue with second grade participants helped us in drawing conclusions regarding that at-risk students are not being challenged academically and are falling far and far behind while they are able to acquire, maintain, and generalize more words per week. Another related limitation is the number of weekly words that teachers introduced and instructed to students throughout
the study. It was particularly a limitation during baseline where only five words were instructed to students every week by the teachers and, as mentioned earlier, the participants already knew some of the weekly words.

Another limitation was related to the setting where the peer tutoring sessions took place. Initially, the first grade teachers agreed to let us use one of the first grade rooms which is usually empty in the designated study time but after we used it couple of times they changed their minds and ask for the room back. For several times, we had to move to a different location inside the school. Finally our problem was solved when a small part of the library was designated for use during this study. It is not known what effect this movement has had on the data.

Another limitation is that the participants had to be pulled out of the classrooms in order to join the peer tutoring sessions. Although classroom teachers are the ones who assigned the best times for the students to be pulled out without missing any valuable instructional time, in some occasions, first and second grade participants had to miss some classroom instruction that was not scheduled. In such a situation, recommending classwide peer tutoring would be more beneficial. The number of participants of this study was also a limitation, having only ten participants would limit the generalization of the findings to a wider population.

Classroom Implications

Peer tutoring is considered one best strategy to promote academic achievement for students, particularly those who are at-risk of academic failure (Nazzal, 2002). It maximizes the number of times students responding to each word which improves the accuracy of responses. The data of this study shows that using peer tutoring program with
low-achieving students to teach sight words is effective. Participants in the study not only learned the words, but also were able to maintain and generalize the new words to sentences when peer tutoring was used.

Peer tutoring is a teaching strategy that supplements teachers’ instruction in the classrooms. Although peer tutoring can be relatively time consuming in the preparation stages, once students are properly trained it can be an efficient and effective strategy. Considering the big classrooms in urban schools and the number of students who considered at-risk of academic failure, teachers can use cooperative learning strategies such as peer tutoring to have students help each other to learn various skills that need additional practice opportunities. In addition to teaching sight words, peer tutoring can be used successfully to teach wide range of academic skills such as math, science, social studies and more.

Teachers can choose the peer tutoring format that serves teachers’ goals and meet the unique needs of students. Teachers can use classwide peer tutoring if the whole class needs to practice certain skill, peer tutoring can individualize the instruction for each student while each student practice on his/her pace and level. On the other hand, teachers can use reciprocal peer tutoring or small group tutoring in situations where a small group of students need more individualized practice with certain skill where the teacher can supervise the activity and deliver instruction to the rest of the class as well. A well-organized and planned peer tutoring program is teacher friendly because teachers would save time and major efforts trying to accommodate their instructions to meet the needs of students with various skill levels. Peer tutoring has instructional flexibility; teachers can adjust the program to fit their instructional time and the individual needs of children.
Peer tutoring is not limited to learning academic skills, students also learn social skills such as being on-task and deliver various social praise and sometimes come up with their own praise statement. Most of first grade students were shy and quit during baseline and in the classroom they just sat there listen to the teacher, during peer tutoring activity their personality changed dramatically when they tutored with confident using proper tone of voice and demonstrating successfully the various tutoring skills and behavior such as prompting, delivering reinforcement and providing corrective feedback. Although the social behavior was not one of the dependent variables of this study and did not measured directly, it was noticed that first and second grade students were on-task and no serious behavioral problems were reported.

The materials that were used in the study were inexpensive and easily accessible to teachers. The rewards that were used were simple and inexpensive as well. Perhaps, one of the things that make working with elementary school students fun and relatively easy is that they are motivated with simple tangible rewards (e.g. candy, pencils, erasers, etc.) that are relatively easy to obtain.

The findings of this study revealed the importance of having the students pre-tested before any academic instruction takes place, particularly with low-achieving students who are not being challenged in the school system. This would not only benefit students, but also it would save teachers’ time and efforts. The results of this study confirm the findings of other studies that suggest peer tutoring as an effective strategy to be used with low-income students and those at-risk of academic failure (Greenwood & Delquadri, 1995; Madrid et al, 1998; Maheady et al, 1987; Neubauer, 2003). In this study, all participants were African American, with the exception of one Caucasian
participant, who came from low SES backgrounds. American schools, particularly urban 
schools, are becoming more culturally and ethnically diverse where many students come 
from impoverished backgrounds. Peer tutoring, as an effective high response 
intervention, is recommended when attempting to identify strategies to increase literacy 
skills in this school population. The participants in this study, especially first graders, 
made great gains that were reflected on their scores on the post tests and were noticed by 
their teachers and parents, these gains lead to the conclusion that peer tutoring is an 
effective strategy to be used with students who are at-risk of academic failure.

Future Research

This study investigated several variables related to the effects of using peer 
tutoring to teach sight words. These variables included sight words learned, maintained, 
and generalized. However, other questions related to certain aspects of these and other 
variables still need to be investigated. As part from collecting generality data, the 
experimenter intended to conduct a pre-generality measure at the same time the weekly 
pretests took place but due to the limited time and the number of assessments that had to 
be conducted each session and each week it was difficult to conduct such assessments. 
Future research is warranted to investigate the ability of students to read the word 
correctly in a context before and after instruction takes place.

In addition, studies should investigate specific variables that might affect skill 
generalization such as having the participant trained to generalize the skill to new 
situations. Another variable related to words’ generalization that was not feasible to be 
investigated in this study is to examine other forms of word generalization. Future 
research that tends to replicate and expand this study might investigate generalization to
other language arts skills such as spelling and writing. Additionally, the reading proficiency of the students could be measured in other academic areas.

An important functional relationship that should be investigated when teaching sight words using peer tutoring is comprehension. It is well documented that learning sight words facilitates reading comprehension. However, an additional empirical research is necessary to explore the relationship between using peer tutoring to teach sight words and a broader range of skills including qualitative reading samples and comprehension.

It is important to investigate the variables that maximize the benefits of peer-tutoring procedures. That is research should identify the specific aspects of peer tutoring that may impact academic outcomes, such as tutor training procedures, opportunities to respond, effective prompting, best possible corrective feedback, etc. This line of research has the potential to expose the specific aspects of peer tutoring that are most effective in increasing academic performance. Such information could help is more careful and systematic planning for tutors training and encourage the development of more efficient teaching strategies.

Additional research is needed in other settings with larger groups of children. Long-term follow-up to determine the effectiveness of this strategy on the reading achievement should also be considered.

Aside from the peer tutoring aspect of this study, more research is needed in creating effective reading interventions that are teacher and student friendly for at-risk minority students in the primary grades.
Summary

This study shows that elementary school students of ages six and seven can be effective peer tutors. It also shows that sight words learned in isolation using an effective high response strategy such as peer tutoring can be maintained over time and generalized to untrained reading materials. Using peer tutoring to teach sight words, especially at urban schools, can be effective and a major time saver for the primary classroom teachers (Cooke et al, 1983). Sight words peer tutoring is not meant to replace the regular teacher instruction; instead it supplements existing teacher instruction by extending and individualizing drill.

The participants of this study were ten students from first and second grades in an urban elementary school who were identified by their teachers as academically at-risk. The participants were trained to carry out the peer tutoring strategy and teach each other, through reciprocal peer tutoring, weekly set(s) of sight words utilizing a multiple baseline design across participants. A distinguishing feature of this study is that the students were pre-tested on the weekly words that were instructed to them in both conditions using a stringent measure. The actual numbers of words that were learned were determined, that is a word was considered learned if the student could not correctly read the word during the pretest but could correctly read it after instruction. This study addresses the necessity that teachers assess students’ knowledge of the academic material prior to instruction whenever that is possible. Through this research it was found that students who were considered academically at risk knew many of the sight words that teacher introduced and instructed prior to any instruction took place.
This study supports the literature regarding teaching urban students at-risk for academic failure (Levin, 1988; Slavin et al., 1989). These students need a challenge and accelerated curriculum using the appropriate high response teaching interventions such as peer tutoring. This study may not be the first to identify an effective strategy to be used to teach sight words to urban learners, but it certainly contribute to the literature in several significant ways. First, it provides a successful adaptation of a field-tested peer tutoring system that can be adapted to meet the unique needs of each classroom. Second, the results of this study indicate that students who are considered at-risk of academic failure are capable of learning more than five new unknown sight words every week. They were not only successful in reading the words correctly but they also were able to maintain and generalize the words that they learned using peer tutoring strategy.
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Neubauer, S. A. (2002). Peer tutoring and group-oriented contingency effects on sight word acquisition of first-grade urban elementary school. Unpublished master’s thesis, The Ohio State University, Columbus, OH.


APPENDIX A

PARENTS CONSENT FORM FOR PARTICIPATION IN SOCIAL AND BEHAVIORAL RESEARCH
CONSENT FOR PARTICIPATION IN SOCIAL AND BEHAVIORAL RESEARCH

Protocol title: “Improving the School Success for Urban Learners.”

Protocol number: Pending

Principal Investigator: Gwendolyn Cartledge

I consent to my child’s participation in research being conducted by Dr. Gwendolyn Cartledge of The Ohio State University and her assistants and associates.

The investigators have explained the purpose of the study, the procedures that will be followed, and the amount of time it will take. I understand the possible benefits, if any, of my child’s participation.

I know that my child can choose not to participate without penalty to me and/or my child. If I agree to participate, I can withdraw my child from the study at any time, and there will be no penalty.

I consent to the use of videotapes and photographs. I understand that these pictures will only be used to demonstrate classroom teaching practices. My child will not be identified by name and my child will be depicted in these tapes in positive ways.

I consent to the use of the following information from my child’s academic records: test scores from weekly quizzes and benchmark evaluations.

I have had a chance to ask questions and to obtain answers to my questions. I can contact the investigators at (614) 292-7629. If I have questions about my rights as a research participant, I can call the Office of Research Risks Protection at (614) 688-4792.

I have read this form. I sign it freely and voluntarily. A copy has been given to me.

Print the name of the participant:

______________________________

Date: ___________________________  Signed: ____________________________

(Signed)  (Participant)

Signed: ____________________________

(Principal Investigator or his/her authorized representative)

Signed: ____________________________

(Person authorized to consent for participant, if required)

Witness: ____________________________

(When required)

HS-027 (Rev. 05/01)
APPENDIX B

PARENTS LETTER
Dear Parent:

I am a professor in the college of education at The Ohio State University. My research assistant, Suha Al-Hassan, and I will be conducting a research project in your child's school. We wish to see if the use of peer tutoring and fluency training will bring about improvements in academic achievement. Peer tutoring is a teaching strategy which requires students to respond at very high rates to the academic materials. Fluency training is a strategy to increase the speed and accuracy of oral reading as measured by the number of words read correctly and words read incorrectly per minute. Students are trained to work in pairs to practice the academic skills presented by the researcher.

We hope these strategies will increase time spent learning the academic materials. Your child will be pulled out of the classroom with other classmates three times a week for 30 minutes each time. The peer tutoring will be conducted during a non-academic period so that your child will not miss any academic instruction in the regular classroom. The peer tutoring activity will give your child additional opportunities to practice the reading skills presented earlier that day by the classroom teacher.

We also are requesting permission to videotape/photograph your child. The purpose of these pictures is to demonstrate specific teaching strategies used by the researcher. They will not be used to identify your child in any way. The tapes will be used in our teaching seminars to show other teachers how to implement these strategies. We need to demonstrate the use of these strategies with groups of children. If you do not consent to the photographs, we will locate your child outside the range of the camera but your child will remain in the room and continue with the instructional activities.

Data collected on your child will include number of sight words identified correctly following each peer tutoring session, and number of words read correctly and number of words read incorrectly per minute. We will observe your child’s engagement with instructional materials and interactions with peers during the peer tutoring. All information collected about your child will be confidential. No one other than the researchers will use this information and your child will not be identified in any way to others.

Both at the middle and before the end of the school year, we will ask parents to complete a questionnaire on how effective you feel this project was on your child’s academic and social performance. We expect the questionnaire to take about 10 minutes to complete. We will also interview your child to determine how your child feels about the behavior management procedure. This informal interview will take approximately 10 minutes to complete and it will not take away any of your child’s academic learning time.

We are requesting your permission so that we might use your child’s classroom performance as data in this study. We also are asking permission to include your child in our classroom videotapes or photographs. Permission is purely voluntary and the decision not to permit this access will not affect the way your child will be treated or graded at
school. Should you consent, please know that you can choose to withdraw your permission at any time during this project. If you have questions, please feel free to contact me at 292-7629. Thank you for your attention and cooperation.

Sincerely,

Gwendolyn Cartledge, Ph.D.
Professor
APPENDIX C
TEACHER CONSENT FORM FOR PARTICIPATION IN SOCIAL AND
BEHAVIORAL RESEARCH
CONSENT FOR PARTICIPATION IN SOCIAL AND BEHAVIORAL RESEARCH

Protocol title: “Improving the School Success for Urban Learners.”

Protocol number: Pending

Principal Investigator: Gwendolyn Cartledge

I consent to my participation in research being conducted by Dr. Gwendolyn Cartledge of The Ohio State University and her assistants and associates.

The investigators have explained the purpose of the study, the procedures that will be followed, and the amount of time it will take. I understand the possible benefits, if any, of my child’s participation.

I know that I can choose not to participate without penalty to me. If I agree to participate, I can from the study at any time, and there will be no penalty.

I consent to the use of videotapes and photographs. I understand how the tapes will be used for this project. I also consent to the use of the following information from my students’ academic records: test scores on the academic material taught for this study.

I have had a chance to ask questions and to obtain answers to my questions. I can contact the investigators at (614) 292-7629. If I have questions about my rights as a research participant, I can call the Office of Research Risks Protection at (614) 688-4792.

I have read this form. I sign it freely and voluntarily. A copy has been given to me.

Print the name of the participant:

______________________________________________________

Date: ___________________________  Signed:  ____________________________

Signed: _________________________  (Participant)

Signed: _________________________  (Principal Investigator or his/her authorized representative)

Signed: _________________________  (Person authorized to consent for participant, if required)

Witness: _________________________  (When required)

HS-027 (Rev. 05/01)
APPENDIX D

TEACHET RECRUITMENT LETTER
Hubbard Elementary School  
Columbus, Ohio 43215

Dear Teacher:

As you are aware, we are conducting a model research/inservice project designed to reduce disciplinary and SED referrals and to increase the school success of at-risk students in your school. This letter is to request your participation in the research component of this project. This means you will be willing to let us work with a group of your students outside the classroom using specific strategies related to effective instruction in times and days you identify. It also means that you will be willing to provide us with the learning materials that we will be using in our research.

You will be expected to collaborate with the project director and staff on the specific strategies that the project staff and you feel will best meet the needs of your students for this purpose.

We also hope to make videotapes and to take photographs of these strategies. We anticipate that setting up and implementing the research project will take 12 to 18 weeks. We plan to get parent permission to collect pupil data and to take pictures within the room where the research will be conducted. At the completion of the project we would like for you to complete a questionnaire evaluating its effects. Participation is totally voluntary and you should feel free to withdraw at any time. If you choose not to participate, it will not affect your position or involvement in other aspects of the project in any way.

I am available to discuss this research project with you in detail. You may reach me by telephone at 292-7629 or by e-mail at Cartledge.1@osu.edu. I look forward to discussing this with you further.

Sincerely,

Gwendolyn Cartledge  
Professor and Principal Investigator
APPENDIX E

STUDENT’S SATISFACTION QUESTIONNAIRE
1. How do you like peer tutoring?

2. What is the best part of peer tutoring? Why?

3. What part of peer tutoring does you like the least? Why?

4. Would you rather have peer tutoring or be in a group that works with the teacher to learn the words?

5. Do you think you learn more words from peer tutoring? Why?

6. Do you think the rewards help you to learn more? Why?

7. What would you change about peer tutoring if you were in charge? Why?

8. Would you like to continue peer tutoring (next year)? Why?

9. Is there anything else you would like to tell me about peer tutoring?
APPENDIX F

TEACHER’S SATISFACTION QUESTIONNAIRE
1. Do you think sight word recognition performance is an important skill and students need to have the competency in order to perform well later in life?

2. Did you notice positive changes in the targeted students’ reading skills after the implementation of the peer tutoring program?

3. Do you think peer tutoring helped students to generalize sight word recognition skill (i.e., reading the sight word in a context)?

4. Do you think reward system is appropriate to promote students’ academic and social performance?

5. Did the students like the reward system that was implemented in this study?

6. Will you recommend students’ participation in such a project in the future?

7. Did the students like being pulled out to participate in the peer tutoring sessions?

8. Did you enjoy participating in this research project?

9. What did you not like about this project?

10. Have the students benefited from peer tutoring in areas other than in reading?
APPENDIX G

PARENT’S SATISFACTION QUESTIONNAIRE
1. Do you think sight word recognition performance is an important skill and students need to have the competency in order to perform well later in life?

2. Did you notice positive changes in the targeted students’ reading skills after the implementation of the peer tutoring program?

3. Do you think peer tutoring helped students to generalize sight word recognition skill (i.e., reading the sight word in a context)?

4. Did your child like the rewards?

5. Did he/she talk about the rewards in a positive way at home?

6. Will you recommend your child’s participation in such a project in the future?

7. Did the students like being pulled out to participate in the peer tutoring sessions?

8. Did your child enjoy participating in this research project?

9. What did you not like about this project?

10. Have the students benefited from peer tutoring in areas other than in reading?
APPENDIX H

TUTOR BEHAVIOR PROCEDURAL CHECKLIST
<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student gets his or her folder.</td>
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<tr>
<td>2.</td>
<td>Student switches folders with his or her partner.</td>
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<tr>
<td>3.</td>
<td>Student participates in Tutor Huddle.</td>
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<tr>
<td></td>
<td>Student sits with the Tutor Huddle members at assigned area.</td>
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<tr>
<td></td>
<td>Student takes turns reading words to members.</td>
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<td></td>
<td>Student repeats the word to members when prompted.</td>
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<tr>
<td>4.</td>
<td>Student participates during practice phase.</td>
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<tr>
<td></td>
<td>Student displays the sight word flashcards with front facing partner.</td>
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<tr>
<td></td>
<td>Student provides praise when partner responded correctly.</td>
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<td></td>
<td>Student provides corrective feedback when partner responded incorrectly.</td>
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<tr>
<td>5.</td>
<td>Student participates during testing.</td>
<td></td>
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<tr>
<td></td>
<td>Student displays sight word flashcard with front facing partner.</td>
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<tr>
<td></td>
<td>Student provides no prompting.</td>
<td></td>
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<tr>
<td></td>
<td>Student places correct responses on “☺” and incorrect responses on “X”.</td>
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<tr>
<td></td>
<td>Student praises partner only at the end of the testing phase.</td>
<td></td>
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<tr>
<td>6.</td>
<td>Student completes charting the back of each card.</td>
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<td></td>
<td>Student draws a circle in the square for correct responses.</td>
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<td></td>
<td>Student marks “X” for incorrect responses.</td>
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<tr>
<td>7.</td>
<td>Student charts his or her cards on the progress chart.</td>
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<td>8.</td>
<td>Student returns folder.</td>
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</tbody>
</table>
APPENDIX I

EXPERIMENTER’S BEHAVIOR PROCEDURAL CHECKLIST IN THE BASELINE
**Date:** __________________ **Session:** ________ **Observer:** ________________________

<table>
<thead>
<tr>
<th>Did the experimenter:</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pull each student individually out of the classroom</td>
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<tr>
<td>2. Set facing the student</td>
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<tr>
<td>3. Display 3x5 index cards (one at a time)</td>
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<tr>
<td>4. Each of the words is written in black ink</td>
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<tr>
<td>5. Each of the sentences is written in black ink</td>
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<tr>
<td>6. Ask the student to read the word out loud</td>
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<td>7. Ask the student to read the sentence out loud</td>
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<td>8. Consider the word correct if it is read correctly within three seconds of presentation</td>
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<td>9. Consider correct if the targeted sight word read correctly when presented in a sentence.</td>
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<td>10. Mark down on a special form a “check” for correct and “X” for incorrect</td>
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<td>11. Provide praise only at the end for cooperation</td>
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<tr>
<td>12. Assess each student on recognizing 5 sight words</td>
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<td>13. Assess each student on recognizing each targeted sight word within one sentence</td>
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</tbody>
</table>
APPENDIX J

SAMPLE OF HIGH FREQUENCY SIGHT WORD FLASHCARD
dad

(Front of card)

(BACK OF CARD)
APPENDIX K

SAMPLE OF TUTORING FOLDER (INSIDE)
APPENDIX L

SAMPLE OF TUTORING FOLDER (BACK)
APPENDIX M

SAMPLE OF GENERALIZATION SENTENCE
I ate an apple.

The sight word in this sample sentence is “ate”.
APPEDNIX N

SAMPLE OF DATA COLLECTION FORM
Week ( )                  Date_______________

Student 1

<table>
<thead>
<tr>
<th>#</th>
<th>Word</th>
<th>Session</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Generalization</th>
<th>Maintenance</th>
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Student 2

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<th>Session 3</th>
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Student 3

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<th>Session 3</th>
<th>Generalization</th>
<th>Maintenance</th>
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</table>
APPENDIX O

SAMPLE STUDENT WORD LISTS
Second Grade

about knew
after know
are let’s
around It’s
away I’ll
because I’d
before I
best how
boy house
brothers have
either girl
came friends
could first
can’t favorite
didn’t every
don’t long
doesn’t made
make many
more new
not outside
off old
only one
or people
please really
right said
saw school
should show
sister skate
small start
thank that’s
they they’re
them then
think to
too trip
too use
two wanted
very we’ll
was were
went when
what
where which
who why
will with
won’t would
APPEDNIX P

SAMPLE STUDENT GENERALIZATION SENTENCES
I want to go with them to the party.

Put the book on the desk.

When the teacher helps me I say thank you.

Give me one apple please.

Ask the teacher if you need help.

I like you so much.

My baby sister is beautiful.

Why do children go to school?

I go to school every day.

Our hats float over the water.

I wash my hands before and after eating.

Would you like a banana or an apple?

My friend will be coming soon.

Michael does not like apples.

I played football with my friends today.

Columbus is a nice place to live.

My father has two different cars.

Columbus is such a beautiful city.

The car crashes into the wall.

Why children go to school?

I can jump two three feet high.

We had heavy rain today.

Your dress is pretty.

The little boy is playing.

Look down.

My hair is long.

I had a nice day.

The traffic is very slow.

My team won the game.

The game is over.

I want to play.

That book is mine.

I like to help my friends.

I am writing a letter.

I kicked the ball.

Most of my friends are boys.

The cat ran around the house.

I come to school every morning.

I had a very busy day.

The teachers snap some pictures today.

I have two sisters.

I had fun at school today.

I have two brothers.

I know who broke the window.
Michael is my friend.
The cars crash into each other.
You are so great.
Can you sit still?
Keep you hand between the lines.
Can you give me your book?
Please set the plates on the table.
You did a good job.
Will you come here?
I just wanted to talk to you.
I like you so much.
Sara goes to school every day.
Have you been to the mall?
This juice is made of fresh fruits.
You should finish your homework.
I have many friends.
Would you please show me the picture?
The teacher said, snap your fingers.
The teacher had my Gameboy.
I had to go to the doctor.
You can go to the room now.
I would like to play with you.
The spring is coming.
Where did you go yesterday?
This is our school.
I know how to use the computer.
I live far from school.
I am writing a letter.
If I invite you, wouldn’t you come?
I like to sleep in my own bed.
Do not drink water while you are eating.
If I invite you, wouldn’t you come?
I found my pen.
My house is down the street to the right.
Would you please talk about your past?
Don’t play now.
Michael doesn’t like apple.
I brush my teeth often.
I found my pen.
Do not drink water while you are eating.
I like to sleep in my own bed.
I have never seen you before.
May I use your pen?
I will see you at school today.