THE EFFECTS OF TOTAL CLASS PEER TUTORING ON SIGHT-WORD ACQUISITION, MAINTENANCE, READING FLUENCY AND COMPREHENSION FOR STUDENTS AT RISK FOR READING FAILURE

A Thesis

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By

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* * * * *

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ABSTRACT

This study examined the effects of total class peer tutoring on the sight word acquisition, maintenance, reading fluency and comprehension of six urban African-American students at risk for reading failure. Five of the students were at the second-grade level and one at the third-grade level. The students tutored their partners on sight words three times per week for 30 minutes each session for 17 to 20 weeks. At the sixteenth week, the whole class participated in peer tutoring. A multiple baseline design across students was used to investigate the effects of the intervention over the four dependent variables.

Data analyses showed that all students increased the number of sight words learned over baseline levels. Five of the six target students demonstrated high levels of sight word retention of more than 89% during bi-weekly assessments. All students increased their reading fluency and comprehension over baseline levels. Greater gains were observed for fluency and comprehension on passages that included the tutoring sight words. More modest gains in comprehension and fluency were found in passages that did not contain words taught in the tutoring sessions.
Dedicated to

my parents for their encouragement

and

to Yiannis for his constant and continuous support
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# Table of Contents

Abstract .......................................................................................................................... ii

Dedication ...................................................................................................................... iii

Acknowledgments ........................................................................................................ iv

Vita .................................................................................................................................. v

List of Tables .................................................................................................................. xi

List of Figures ................................................................................................................ xiii

Chapters:

1. Introduction .............................................................................................................. 1
   Purpose ..................................................................................................................... 3
   Research Questions ................................................................................................. 5
   Review of Literature ............................................................................................... 5
   Current Trends in Urban Education ......................................................................... 5
   Effective Instruction ............................................................................................... 10
   Reading Instruction ............................................................................................... 14
   Peer-mediated learning strategies ......................................................................... 20
   Peer Tutoring ........................................................................................................ 22
   Peer Tutoring Formats .......................................................................................... 23
   Benefits to Tutors ................................................................................................. 31
   Benefits to Tutees ................................................................................................. 34
   Benefits to Teacher ............................................................................................... 37
   Summary ................................................................................................................ 37
2. Method ........................................................................................................ 39
   Participants .................................................................................................. 39
   Setting .......................................................................................................... 41
   Experimenter and Research Assistants ....................................................... 42
   Definition and Measurement of Dependent Variables ............................... 43
      Sight-Word Acquisition ........................................................................... 43
      Maintenance of Sight Words .................................................................... 44
      Reading Fluency ...................................................................................... 44
      Reading Comprehension ......................................................................... 46
   Independent Variable .................................................................................. 48
   Integrity Assessment Procedures ............................................................... 48
      Dependent Variables ................................................................................ 49
      Independent Variable ............................................................................. 49
   Observer Training ....................................................................................... 50
   Materials ...................................................................................................... 51
   Experimental Design .................................................................................... 58
   Procedures .................................................................................................... 59
      Pretest ...................................................................................................... 59
      Baseline ................................................................................................... 61
      Training ................................................................................................... 63
      Peer Tutoring .......................................................................................... 65
   Assessment of Reading Fluency and Comprehension ............................... 70
   Total Class Peer Tutoring Training ............................................................. 72
   Total Class Peer Tutoring ........................................................................... 74
   Maintenance Assessment .......................................................................... 75
   Posttest ........................................................................................................ 76
   Measurement of Social Validity .................................................................... 79
3. Results ........................................................................................................... 80
   Interobserver agreement ................................................................. 80
   Procedural integrity ................................................................. 81
   Individual student results ........................................................... 84
   Student 1: Erin
      Sight-word acquisition ................................................................. 84
      Reading fluency ................................................................. 85
      Reading comprehension ................................................................. 85
      Maintenance ................................................................. 86
      Pretest and posttest results ......................................................... 86
   Student 2: Steve
      Sight-word acquisition ................................................................. 88
      Reading fluency ................................................................. 88
      Reading comprehension ................................................................. 89
      Maintenance ................................................................. 89
      Pretest and posttest results ......................................................... 89
   Student 3: Irena
      Sight-word acquisition ................................................................. 91
      Reading fluency ................................................................. 91
      Reading comprehension ................................................................. 92
      Maintenance ................................................................. 92
      Pretest and posttest results ......................................................... 92
   Student 4: Dignity
      Sight-word acquisition ................................................................. 93
      Reading fluency ................................................................. 94
      Reading comprehension ................................................................. 94
      Maintenance ................................................................. 95
      Pretest and posttest results ......................................................... 95

viii
Student 5: Dan

Sight-word acquisition .............................................. 96
Reading fluency ......................................................... 97
Reading comprehension ............................................... 97
Maintenance ............................................................. 97
Pretest and posttest results ......................................... 98

Student 6: Susan

Sight-word acquisition .............................................. 99
Reading fluency ......................................................... 99
Reading comprehension ............................................... 100
Maintenance ............................................................. 100
Pretest and posttest results ......................................... 100

Group results ......................................................... 101

Students’ satisfaction results ...................................... 104
Teachers’ satisfaction results ...................................... 106
Parents/guardians’ satisfaction results ......................... 107
Summary ................................................................. 109

4. Discussion .......................................................... 124

Research Question One ............................................. 124
Research Question Two ............................................... 128
Research Question Three ........................................... 130
Research Question Four ............................................. 132
Limitations of the study ............................................. 133
Implications for classroom practices ............................. 136
Suggestions for additional research ............................... 138
Summary ................................................................. 139

List of References ...................................................... 141
### Appendices

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Parent letter for participation</td>
<td>152</td>
</tr>
<tr>
<td>B. Parent consent for participation</td>
<td>154</td>
</tr>
<tr>
<td>C. Teacher letter for participation</td>
<td>156</td>
</tr>
<tr>
<td>D. Teacher consent for participation</td>
<td>158</td>
</tr>
<tr>
<td>E. DIBELS™ passage of 2&lt;sup&gt;nd&lt;/sup&gt; grade for reading fluency</td>
<td>160</td>
</tr>
<tr>
<td>F. DIBELS™ passage of 2&lt;sup&gt;nd&lt;/sup&gt; grade for reading comprehension</td>
<td>162</td>
</tr>
<tr>
<td>G. DIBELS™ passage of 3&lt;sup&gt;rd&lt;/sup&gt; grade for reading fluency</td>
<td>164</td>
</tr>
<tr>
<td>H. DIBELS™ passage of 3&lt;sup&gt;rd&lt;/sup&gt; grade for reading comprehension</td>
<td>166</td>
</tr>
<tr>
<td>I. Experimenter’s constructed passages</td>
<td>168</td>
</tr>
<tr>
<td>J. Parent satisfaction questionnaire</td>
<td>172</td>
</tr>
<tr>
<td>K. Teacher satisfaction questionnaire</td>
<td>175</td>
</tr>
<tr>
<td>L. Student satisfaction questionnaire</td>
<td>179</td>
</tr>
<tr>
<td>M. Procedural integrity checklist for tutor behaviors</td>
<td>181</td>
</tr>
<tr>
<td>N. Procedural integrity checklist for reading fluency and comprehension</td>
<td>183</td>
</tr>
<tr>
<td>O. Datasheet</td>
<td>185</td>
</tr>
<tr>
<td>P. Lesson plan training script</td>
<td>188</td>
</tr>
<tr>
<td>Q. Good News Report</td>
<td>191</td>
</tr>
<tr>
<td>R. High frequency flashcards</td>
<td>193</td>
</tr>
<tr>
<td>S. Testing page of peer tutoring folder</td>
<td>195</td>
</tr>
<tr>
<td>T. Progress raw chart of peer tutoring folder</td>
<td>197</td>
</tr>
<tr>
<td>U. “GO” and “STOP” pockets of peer tutoring folder</td>
<td>199</td>
</tr>
<tr>
<td>V. Starcard pocket of peer tutoring folder</td>
<td>201</td>
</tr>
<tr>
<td>W. Teacher list of sight words</td>
<td>203</td>
</tr>
<tr>
<td>X. Dolch basic sight word list and Columbus Reading Guide word list</td>
<td>205</td>
</tr>
<tr>
<td>Y. “Caught Being Good” tokens</td>
<td>208</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.</td>
<td>Students characteristics based on grade level, gender, age, and reading scores</td>
<td>40</td>
</tr>
<tr>
<td>2.2.</td>
<td>DIBELS™ benchmark goals in the middle of the second grade</td>
<td>71</td>
</tr>
<tr>
<td>2.3.</td>
<td>DIBELS™ benchmark goals in the middle of the third grade</td>
<td>72</td>
</tr>
<tr>
<td>2.4.</td>
<td>DIBELS™ benchmark goals in the end of the second grade</td>
<td>78</td>
</tr>
<tr>
<td>2.5.</td>
<td>DIBELS™ benchmark goals in the end of the third grade</td>
<td>78</td>
</tr>
<tr>
<td>3.1.</td>
<td>Interobserver agreement for the dependent measures of the study</td>
<td>110</td>
</tr>
<tr>
<td>3.2.</td>
<td>Procedural integrity for tutor behaviors</td>
<td>110</td>
</tr>
<tr>
<td>3.3.</td>
<td>Means and percentages for number of sight words recognized during baseline and peer tutoring across sessions</td>
<td>111</td>
</tr>
<tr>
<td>3.4.</td>
<td>Average number of words read per minutes across baseline and peer tutoring sessions</td>
<td>115</td>
</tr>
<tr>
<td>3.5.</td>
<td>Average number of comprehension questions answered correctly across baseline and peer tutoring sessions</td>
<td>115</td>
</tr>
<tr>
<td>3.6.</td>
<td>Pretest and posttest results of the Woodcock-Johnson III Tests of Achievement</td>
<td>119</td>
</tr>
<tr>
<td>3.7.</td>
<td>Results of the winter and spring DORF’s benchmark assessments</td>
<td>120</td>
</tr>
<tr>
<td>3.8.</td>
<td>Percentages of peer tutoring sight words retained at the cumulative maintenance assessment</td>
<td>120</td>
</tr>
</tbody>
</table>
3.9. Pretest and posttest results of the second- and third-grade word lists..... 121

3.10. Students’ responses on the satisfaction evaluation......................... 122

3.11. Parents’ responses on the satisfaction evaluation......................... 123
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hypothetical pathway model of academic failure for students in urban settings</td>
<td>11</td>
</tr>
<tr>
<td>3.1.</td>
<td>Number of sight words recognized across baseline and peer tutoring sessions</td>
<td>112</td>
</tr>
<tr>
<td>3.2.</td>
<td>Number of words read correctly per minute across sessions on DIBELS and constructed passages</td>
<td>113</td>
</tr>
<tr>
<td>3.3.</td>
<td>Number of comprehension questions answered correctly across sessions on DIBELS and constructed passages</td>
<td>114</td>
</tr>
<tr>
<td>3.4.</td>
<td>Number of words retained across sessions by the first tutoring pair</td>
<td>116</td>
</tr>
<tr>
<td>3.5.</td>
<td>Number of words retained across sessions by the second tutoring pair</td>
<td>117</td>
</tr>
<tr>
<td>3.6.</td>
<td>Number of words retained across sessions by the third tutoring pair</td>
<td>118</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

The current public school system is based on the tenet of equal educational opportunities for all students. This philosophy is well documented in a series of laws and educational authorizations (P.L. 94-142, 1975; P.L. 101-476, 1990; P.L. 105-17, 1997; NCLB, 2001) carried out in the last 30 years. Additionally, during this period, numerous school reform movements have taken place to provide the maximum opportunities for students whose race, ethnicity, gender or language is different from the dominant culture (Utley & Obiakor, 2001a). Despite all these efforts, the public urban educational system still suffers. Students from diverse backgrounds are less likely to receive a quality education and more likely than their dominant group peers to be placed in special education (Gottlieb, Alter, Gottlieb, & Wishner, 1994). Minority students are disproportionately represented in special education classrooms with specific minority groups to prevail in certain types of disabilities (U.S. Department of Education, 2002). These conditions contribute to a bleak picture for urban minority students, who are very likely to drop out of school (Gardner, Cartledge, Seidl, Woolsey, Schley, & Utley, 2001) or graduate with academic and social skill deficits. National longitudinal studies further illustrate the urban learners’ postschool status, which is characterized by low employment rates, underemployment, low attendance of postsecondary educational programs, and
lower adjustment to adulthood than their peers from suburban schools (Greenwood & Delquadri, 1995).

A pressing concern is the inability of urban schools to meet the individualized needs of the fast growing diverse population (Gardner & Talbert-Johnson, 2000). Hence, the need is to integrate effective, research-based interventions to provide equal educational opportunities to urban students. A key factor to this initiative is the teachers. They are a powerful force in the lives of children. Improving the quality of instruction is of paramount importance for facilitating students' academic and social development (Kea & Utley, 1998; Russo & Talbert-Johnson, 1997).

Peer-mediated interventions and instruction are considered to be one solution for improving students' performance as well as teacher's instruction. Peer-mediated interventions allow teachers to individualize their work while still providing students with a lot of opportunities for active student responding (Utley, 2001).

Total class peer tutoring\(^1\) is one type of peer-mediated intervention. Arreaga-Mayer (1998) describes total class peer tutoring as "a highly effective and validated form of intraclass peer-mediated instruction that uses behavioral techniques to promote the acquisition of academic and social behaviors. It is based on the instructional principle of opportunity to respond, which asserts that a necessary condition for academic achievement is frequent interaction between teacher and/or classroom antecedents and student responding" (p.89). There is research to support the positive effects of the total class peer tutoring across a variety of subject areas such as sight word vocabulary (Heron,

\(^1\) This format is widely known in the literature as classwide peer tutoring. In this study, it will be referred to as total class peer tutoring.
Heward, Cooke, & Hill, 1983; Cochran, Feng, Cartledge, & Hamilton, 1993; Butler, 1999), math (Maheady, Sacca, & Harper, 1987), social skills (Kohler, Richardson, Mina, Dinwiddie, & Greenwood, 1985), spelling (Delquadri, Greenwood, Stretton, & Hall, 1983), reading (Kamps, Barbetta, Leonard, & Delquadri, 1994; Simmons, Fuchs, Fuchs, Hodge, & Mathes, 1994; Fuchs, Fuchs, Mathes, & Simmons, 1997), and Spanish vocabulary (Wright, Cavanaugh, Sainato, & Heward, 1995).

**Purpose of Study**

The purpose of this study was to examine the effects of total class peer tutoring on the reading performance of students at-risk for reading failure in an urban school setting. The focus of the study was to investigate students’ performance on the acquisition of sight words, the maintenance of these words, reading fluency and their comprehension after participating in total class peer tutoring for 16 weeks (sessions 22-69).

Although various research studies have demonstrated effectively the increase of students’ sight word vocabulary (Heron et al., 1983; Greenwood, Arreaga-Mayer, Utley, Gavin, & Terry, 2001) and reading fluency (Greenwood, Delquadri, & Hall, 1989), the subsequent effects on comprehension have not been investigated. A second interest of this study is to examine the above hypothesis using The Ohio State University Total Class Peer Tutoring system. No other studies, to the best of the researcher’s knowledge, have examined this hypothesis using this model. Other studies (Greenwood et al., 1989) investigated reading fluency using different tutoring models. For example, the classwide peer tutoring, developed mainly by Delquardi, Greenwood and their colleagues at the Juniper Gardens Children’s Project of the University of Kansas, include 10 components,
which some of which are similar to the total class peer tutoring model of The Ohio State University such as pretesting, reciprocal tutoring, immediate error correction and reinforcement but other components are different. Delquadri and others, for example, used team competition, new partners each week, public posting of team scores and different steps for the error correction procedure. These were not elements of the OSU model. Furthermore, the current model changed weekly the set of sight words being learned, according to the teacher’s curriculum. Therefore, the present study is unique in terms of applying a different total class peer tutoring system as to investigate its effects on the areas of reading fluency, reading comprehension, and acquisition and maintenance of sight word vocabulary. Additionally, the present study aimed to verifying further studies’ findings for the strong and positive effects of the intervention on urban student population (Greenwood et al., 1989). Finally, the present study is partially a systematic replication of a doctoral dissertation (Al-Hassan, 2003), which examined the effects of reciprocal peer tutoring on the acquisition, maintenance, and generalization of high frequency words of urban first and second grade students. There are similarities with this study such as the implementation of the same procedures for identifying unknown sight words, the generalization of these sight words in context, and involvement of the same participants. Differences from Al-Hassan’s dissertation are noted in the type of tutoring system used (reciprocal vs. total class peer tutoring), the procedures of maintenance (weekly maintenance vs. biweekly maintenance), the procedures for generalization (words in small sentences vs. words in reading passages), and the addition of the dependent variable of the reading comprehension.
Research Questions

The research questions for this study were:

1. What are the effects of total class peer tutoring on the acquisition of high frequency sight words for at-risk urban second- and third-grade students?

2. What are the effects of total class peer tutoring on the retention of high frequency sight words for at-risk urban second- and third-grade students during bi-weekly as well as end-of-the-study maintenance checks?

3. What are the effects of total class peer tutoring on the oral reading fluency for at-risk urban second- and third-grade students?

4. What are the effects of total class peer tutoring on the reading comprehension for at-risk urban second- and third-grade students?

REVIEW OF LITERATURE

The present literature review concentrates on three topics: (a) current trends in urban education, (b) characteristics and types of effective instruction in reading for urban students, and (c) peer-mediated instructional approaches (particularly peer tutoring systems) on students' academic performance.

Current Trends in Urban Education

Urban education is characterized by students from inner cities whose families are of low socioeconomic status and are from culturally and linguistically diverse background. Urban minority learners are the fastest growing population of school-aged
children in the United States. According to the 2000 Census data, the United States has approximately 275,000,000 people and nearly one of every three of whom are African-American, Hispanic, Asian-American and American-Indian. Students of color are projected to account for 24% of the total school age population by 2012 and by 2025 half of the children will be non-Anglo (Jefferson-Jenkins, 2003). The fast growing diverse population in the States is concentrated mainly in the urban areas of big cities. Therefore, a pattern has been created wherein urban schools are populated with predominately minority and poor students whilst the suburban schools are populated with predominately white and middle class students. According to Gardner & Talbert-Johnson (2000), this phenomenon is attributed to two factors: the influx of immigrants to America, which then partly caused the White flight, the movement of White people to the suburban areas of big cities. Thus, the result is having even more diverse and segregated schools than what the cornerstone decision of the Brown v. Board of Education suggested in 1954.

On top of the segregation and racial inequality of the urban schools, a pressing concern continues to be the inability of the urban school districts to meet the individualized needs of all students, including students of color, students with special needs, as well as students from low-socioeconomic backgrounds (Gardner & Talbert-Johnson, 2000). According to the provisions of the initial Education for All Handicapped Children Act of 1975 (P.L. 94-142) and its subsequent reauthorization of the Individuals with Disabilities Education Act (IDEA, P.L.105-17), all students with disabilities will have available to them “a free appropriate public education that emphasizes special education and related services designed to meet their unique needs.” Thirty years since the passage of the act, little has changed in the education of children of color and special
education. In fact, data have shown that minority students are disproportionately placed in special education (National Research Council [NCR], 2002; U.S. Department of Education, 2002). Research conducted by the National Research Council (NCR, 2002) revealed that specific cultural and ethnic groups are at high risk in four disability categories: mental retardation, learning disabilities, severe emotionally disturbed, and gifted and talented. For example, African American students and American Indian/Alaskan Native students are at the highest risk for being labeled as mentally retarded (MR), severe emotionally disturbed (SED) and learning disabled. African American children present the highest risk (Risk Index =2.64) to be classified as MR in comparison to other ethnic groups (American Indian/Alaskan Native=1.28, White=1.18, Hispanic=0.92, Asian/Pacific Islander=0.64). African American students are also at higher risk for SED identification (RI=1.45) than any other group (American Indian/Alaskan Native=1.03, White=0.91, Hispanic=0.55, Asian/Pacific Islander=0.26). Similar research patterns are evident in the category of learning disabilities (American Indian/Alaskan Native=7.45, African American= 6.49, Hispanic=6.44, White=6.02, Asian/Pacific Islander=2.23). The statistics for Gifted and Talented Education is a mirror image of what is seen in MR survey. That is, African American students have the lowest risk (RI=3.04) for being identified in gifted and talented education programs compared to other ethnic groups (Asian/Pacific Islander=9.98, White=7.74, American Indian/Alaskan Native=4.86, Hispanic=3.57).

In addition to the disproportionality of urban learners receiving special education services, school and later life outcomes for urban learners at risk of school failure are bleak. Poor learners are twice as likely to drop out of school. Many urban school districts
have drop out rates as high as 60%. Urban poor students are at greater risk than other students for suspensions, expulsions and mental health problems such as depression, substance abuse, delinquency, violence, maltreatment and posttraumatic stress disorder (Gardner et al., 2001; Russo & Talbert-Johnson, 1997; Gardner & Talbert-Johnson, 2000). What is more, urban students fail significantly below their peers on all academic achievement measures such as grades, standardized test scores, rates of graduation and percentage of college enrollments (Warren, 2002). Utley & Obiakor (2001a) posit that the implementation of educational programs for minority students raises a great concern because these students do not receive the appropriate educational services in inclusive and least restrictive environments. Kozol (1991) emphasizes that the problems urban learners face are not mainly matters of injustice, inequality or segregation but of insufficient information about teaching strategies. He also notes that the distribution of funding and resources is not equal among schools. The difference between the spending of suburban communities per student and urban communities per student is quite enormous (Kozol, n.d.).

These students not only have the greatest educational needs but are least likely to receive a quality education (Lambert, 2002; Cartledge, 2002). The education that these students receive is impersonalized and it does not teach them how to escape their poverty and become successful in their social and academic life. In addition no multicultural or multilingual educational approaches have been used that correspond to the needs of these students.

Lambert (2002) points out that not only do urban children start out behind, coming to school with fewer skills than their middle-class peers, but also the quality and
quantity of instruction provided to them are inferior to instruction at suburban schools. Teachers of poor urban learners tend to be inexperienced with inadequate mastery of critical teaching skills (Nieto, 2001; Cartledge, 2002). Teachers maintain low and unclear expectations, often use punitive methods, make ambiguous rules and fail to differentiate their instruction to minority students' needs (Lewis & Sugai, 1999; Cartledge, 2002; Beckman, 1993; Anyon, 1998; Kea, Cartledge, & Bowman, 2002). Gottlieb et al. (1994) reported that students are classified as learning disabled, when in fact most are not. Based on their data, Gottlieb et al. concluded that urban schools define students as learning disabled if they “are low-achieving, low-ability children who do not exhibit aggressive or bizarre behavior and whom teachers cannot accommodate in their general education classroom” (p.458). Thus, as soon as the students are labeled with a disability, they are sent to special education on a one-way ticket. However, Gottlieb and his team state that both the source of the problem lies in general education with an unrealistic expectation that inexperienced and poorly trained teachers can meet the severe needs of inner-city children with little or no support in the classroom. The authors contend that it is “equally unrealistic to expect a couple of hours weekly of special education, or any other educational support, to undo the effects of poverty” (p.464). Another extremely important observation by Gottlieb and colleagues is the twofold purpose inherent in special education. The overt purpose of special education was to help the slow-learning students by protecting them from the unfair competition of more capable classmates. The covert purpose was to provide relief to the general education teacher. That is, sending children to special classes “allows the general education teachers to teach the remaining children
who are perceived as wanting and/or able to learn” (p. 464). In summary, Figure 1 describes the pathway of academic failure for many students in urban schools.

However, there are urban students who are able to succeed in such settings despite their family low socioeconomic and cultural diverse background. These students become successful when effective and efficient instruction is provided to them.

By looking at the devastating academic and social outcomes of urban learners, one can not ignore the plight of these students. Research shows that the solution to this problem lies in the delivery of intensive and effective instructional services to students in dire need. The quality of instruction is of paramount importance for improving student progress and achievement (Kea & Utley, 1998; Gottlieb et al., 1994; Russo et al., 1997; Gardener et al., 2000; Warren, 2002; Gardener et al., 2001; Smith, 2000; Greenwood & Delquadri, 1995; Doll & Lyon, 1998).

**Effective Instruction**

The focus of general and special education teachers should be on improving the effectiveness of their instruction based on a culturally relevant pedagogy (Daniels, 2001; Russo & Talbert-Johnson, 1997; Kea & Utley, 1998). Utley & Obiakor (2001b) purport that general and education special teachers must be trained through culturally responsive teacher preparation programs to identify students’ needs and apply best practices to promote student learning. The need for effective and efficient research-based interventions that promote high standards and increase parental and community involvement is imperative (Gardner et al., 2000; Gottlieb et al., 1994; Doll & Lyon, 1998). Best practices in urban schools must be effective and efficient in order to achieve
Before entering urban school
- Low socioeconomic family status
- Cultural and linguistic family background
- Poor academic skills
- Poor social skills
- Large families
- Parents’ lack of academic and social skills
- Divorced or single parent families

Upon entering urban school
- Inexperienced teachers with unclear rules
- Ineffective instructions
- Inconsistent class management
- Low school expectations
- Limited school resources and funding
- Excessive or exclusive use of punitive methods (e.g. suspensions, expulsions)

Results at urban school
- Academic failure in class
- Behavioral problems
- Low scores in statewide and district wide standardized tests.
- Failure in meeting state standards.
- Increase of Achievement Gap

Entrance in Special Education
- Low teachers’ expectations
- Low quality curriculum
- Low quality and inadequate instruction
- Isolation from peers

Dropping out or Graduating with lack of basic academic skills

Figure 1: Hypothetical pathway model of academic failure for students in urban schools
the desired outcomes. Effective and efficient instruction is characterized by five factors:

(1) Instruction should have a sound theoretical base which has been empirically tested and approved to be correct,

(2) it should have the methodological integrity of the research that is both convincing and compelling for practice. In other words, the practice is analytical and technological. Analytical refers to the convincing evidence of the practice that produced change. Technological refers to the replication of the practice by different persons that achieve similar outcomes.

(3) Instruction should have consensus with existing literature. Therefore, systematic applications of the practice must occur not in isolated settings but in classroom settings,

(4) evidence that desired outcomes have consistently occurred should be documented, and

(5) evidence of social validity should be present. That is, consumers (teachers, students, parents) accept the application and the effects of the instruction (Heron, 2000; Heron & Harris, 2001).

Furthermore, effective instruction is measured by the time students actively engage in their learning. In other words, best practices are the ones that include active student responding (ASR), defined as the detectable responses students make to ongoing curriculum instruction. It is more important to count the number of academic responses made by the students within a period of time than considering the time they are engaged in the task (Heward, 1994). Thus, student learning is enhanced by counting the number of academic responses emitted at a given period on instruction such as words read per
minute, problems answered, workbook questions answered, etc. Research demonstrated strong positive correlation between ASR and learning. However the strongest, most consistent effects have been found with low-achieving elementary students (Smith, 2000).

According to Heward (1994), active student responding (ASR) is a direct measure of the students' specific answers to the lesson and it reveals not only how much instruction has been delivered, but also how much learning has occurred. Unlike other time-based measures of student's engagement, an ASR measure is highly sensitive to changes in instructional procedures and it is not limited by artificial ceilings. What is more, ASR is a simple measure that general and special education teachers may include in their instruction to assess how much active instruction their students receive. Likewise, ASR is an appropriate and effective measure for all types of teaching formats in instructional settings and curriculum.

Heron & Harris (2001) provide a list of effective strategies that a teacher can use as effective instruction in class. The effective strategies are classified into three categories: teacher-directed, peer-mediated, and semi-independent and independent. Types of teacher-directed effective strategies are Direct Instruction, early intervention, cognitive behavior modification, mnemonic training and active student responding methods such as choral responding, response cards and guided notes. The peer-mediated effective strategies focus on the active involvement of students who are held accountable for their learning. Examples of this category are tutoring systems (reciprocal one-to-one peer tutoring, cross-age peer tutoring, small group peer tutoring, and classwide peer tutoring) and cooperative learning. The third category of effective strategies is the semi-
independent and independent that includes computer-assisted instruction and assistive
technology.

*Reading Instruction*

Components of effective reading instruction for urban students should include the ones mentioned earlier: empirically tested theory, consensus with literature, desired outcomes, duration and persistence of the effectiveness of the instruction and ASR.

Reading is undoubtedly an educational outcome essential to academic achievement and success in life (Good, Gruba, & Kaminski, 2001). Unfortunately, students from economically disadvantaged urban homes are considered to be at-risk for reading failure because they do not have the basic reading skills in their repertoires.

Reading is considered to be a complex and difficult process. Tan & Nicholson (1997) report that reading as a multicomponent skill and includes a number of different cognitive processes such as word recognition, access of word meanings, parsing of sentences, semantic analysis of sentences, and interpretation of the overall text. Reading process has been the subject of studies for several years and because of its complexity many theoretical approaches have been developed.

Two major reading approaches have been influencing reading instruction: letter-level or phonics approach and the whole language or word-level approach. The first approach of phonics stresses the acquisition of letter-sound correspondences and their use in reading and spelling (National Reading Panel [NRP], 2000). The phonics instruction aims at providing students with rules that will enable them to predict how a written word will sound from the way it is spelled (Smith, 1982). Therefore, the teachers’ primary
focus is to help beginning readers understand how letters are linked to sounds (phonemes) to form letter-sound correspondence and spelling patterns and to help them learn to apply this knowledge to their reading.

The second reading approach is the whole language instruction which focuses on the philosophy that students read words only in context as in a story. Students are encouraged to read for meaning, using context cues, picture clues and use of initial letter clues as to confirm their guesses to the meanings of words (Tan & Nicholson, 1997). This approach is characterized as a top-down method because the emphasis is placed on learning the language as a whole, which is greater than the sum of its parts. Lapp & Flood (1992) describe reading under this approach as not a process that can be broken down into a myriad of subskills. Advocates of this approach believe that one learns to read by reading rather than acquiring a series of component skills (Harris & Sipay, 1990). In contrast, phonics is considered to be a bottom-up approach because it focuses on acquiring letter-sound correspondences and then proceed to higher levels such as word recognition, word and sentence meanings and interpretation of the overall text. Both approaches aim at teaching students to read by using different processes of implementation.

When students increase their automaticity in decoding (i.e. processing word units), they are able to recognize words easily and thus connect them while reading a passage (Chard, Vaughn, & Tyler, 2002). When decoding skills become an automatic process, students consume less working memory in recognizing words and thus are able to focus more in comprehending the text. Research shows that at-risk students are able to acquire word decoding skills and increase their reading fluency under the phonics
instruction approach (Allinder, Dunse, Brunken, & Obermiller-Krolikowski, 2001; NRP, 2000; Pressley & Wharton-McDonald, 1997; Tan & Nicholson, 1997). When at-risk students acquire the basic decoding skills, they can read words with little effort. After mastering a specific amount of words, they are able to combine the known words and spelling patterns to identify unknown words.

In addition to increasing their automaticity in decoding, urban students need to increase their reading fluency (Chard et al., 2002). Although reading fluency is considered to be a critical factor for student’s general reading development and achievement, it is often neglected in the classrooms (NRP, 2000; Kamhi, 2003; Rasinski, Linek, Sturtevant, & Padak, 1994; Chard et al., 2002).

Reading fluency is defined as the ability to read orally in a smooth and effortless manner (Allinder et al., 2001; Rasinski et al., 1994). Kamhi (2003) posits that “fluency usually is defined as the ability to read with speed, accuracy and proper expression... is the integration of word recognition and comprehension abilities...” (p.1). Improving word recognition and comprehension abilities will directly affect fluency. Tan & Nicholson (1997) examined students’ oral reading fluency and comprehension by training students in decoding single words quickly and accurately using flashcards. Their results showed that students improved their word recognition skills and as a result their reading fluency and comprehension increased on unknown passages. This study supports the bottleneck hypothesis; increasing decoding efficiency would lead to improved comprehension. These findings are especially important for urban students, who lack word attack skills, reading fluency, and reading comprehension.
Fuchs and his team (2001) support the value of oral reading fluency as “an indicator of overall reading competence and its utility for helping teachers plan better instruction and effect superior outcomes” (p.252). Readers, who are still good at decoding but continue to lack fluency, often present halting reading and pause in the wrong places (McKenna, 2002). Such reading impairs students’ comprehension. Chard and his colleagues (2002) conducted a meta-analysis of effective interventions for building reading fluency of elementary students with learning disabilities. They concluded that the essential components for improving reading fluency are rereading a text many times and to many different people, and providing a progressively more difficult text with feedback and correction. Repeated reading interventions are associated with improvements in reading rate, accuracy, and comprehension. Growth in reading fluency brings also growth in reading comprehension. Other key findings of their meta-analysis are: (1) repeated reading with a model (e.g. teacher, fluent peer, tape- or computer-modeled reading) is more effective than repeated reading with no model, (2) repeated reading with teacher models is more effective than audiotape or computer-generated models, (3) having a text read at the beginning by a model enhances comprehension because students can focus on the content of the text before they read it by themselves, (4) cross-age tutoring seems to provide higher effects as opposed to reciprocal peer tutoring, where the students change tutor-tutee roles, (5) rereading a text seven times is better than three times, which is better than one time, (6) varying the amounts of text to facilitate chunking does not improve fluency, (7) controlling the difficulty of text and providing feedback for words missed. This approach may be beneficial for students who experience difficulty in reading accuracy because it would
give them more time to focus on the words and (8) advancing students through progressively more difficult text based on their performance.

In addition to the above strategies, another instructional approach that develops students’ reading skills is Direct Instruction (Rasinski et al., 1994). Direct Instruction (DI) is defined as an explicit, intensive instruction in which the teacher makes clear to students what it is they are being asked to learn, and then explains, demonstrates, or models often in a step-by-step way, the reading skill under consideration (Harris & Sipay, 1990). DI is considered to be a teacher-directed effective strategy that teachers are responsible for students’ learning. DI is consistent with behavioral principles of positive reinforcement for correct responses and systematic error correction. It includes characteristics of effective instruction such as maximal opportunities for student learning and high rates of active student responding, known as ASR. Research has demonstrated effectively and strongly that DI benefits especially low-achieving readers in primary and elementary grades from low SES backgrounds (Harris & Sipay, 1990; Kozioff, LaNunziata, Cowardin, & Bessellieu, 2000; Becker & Engelmann, 1995; Tashman, 1995; Watkins, 1995; Adams; 1995; Grossen, 1995).

As noted earlier, reading fluency has been identified as an essential bridge between word recognition and comprehension (NRP, 2000). Armbruster, Lehr, & Osborn (2003) contend that fluent reader is the one who does not concentrate on decoding the words but he focuses on understanding the text and connecting ideas in the text with his background knowledge. In other words, fluent readers are able to recognize words and comprehend at the same time. Furthermore, Heward (2003) notes that the inability to recognize words automatically weakens comprehension in two ways. First, slow readers
decode fewer words and idea units, thus they are not able to comprehend a lot. Second, struggling readers consume a large portion of their working memory in order to identify words. This results in having fewer cognitive resources available for comprehension; therefore comprehension is undermined.

However researchers have been focusing on improving word recognition skills with little emphasis placed on comprehension. Pressley & Wharton-McDonald (1997) state that the “overfocus on word level reading skills has occurred, in part, because of the belief of some that the word decoding is the bottleneck in the comprehension” (p.449). Smith (1982) also argues that comprehension does not require prior identification of words. He contends that comprehension can be as immediate as the word recognition and emphatically notes that meaning facilitates the identification of individual words and it is replicated every time one reads. Therefore, on one hand researchers do accept the importance of automatic decoding that would permit greater comprehension of what it is read but on the other hand, however, they believe that comprehension requires much more (Pressley & Wharton-McDonald, 1997); comprehension needs to be taught. Chard and his colleagues (2002) support that reading instruction should focus on students’ attention both on increasing their fluency and improving their comprehension abilities.

Lapp & Flood (1992) define reading comprehension as “…the acquisition of information from printed materials. If information is not processed, if comprehension has not taken place, then reading has not occurred. Reading is comprehension” (p.117). The NRP (2000) report supports this viewpoint. It characterizes reading comprehension as the essence of reading because it is a critically important skill not only in the academic subjects but also to lifelong learning. This complex cognitive process can be developed if
students are instructed on two main areas: vocabulary instruction and text comprehension instruction. Vocabulary instruction can be taught directly and indirectly based on the students’ age and ability (NRP, 2000). Direct instruction of vocabulary items promotes students’ exposure to multiple and repeated important meanings (Harris & Sipay, 1990) and along with computer technology, both enhance the acquisition of vocabulary. Using a combination of effective techniques such as recalling, questions as stimulants for thinking, question answering, and summarization of texts improve students’ text comprehension (Lapp & Flood, 1992). Pressley & Wharton-McDonald (1997) provide a series of guidelines of improving the cognitive process that students could follow before, during, and after reading.

**Peer-mediated learning strategies**

As it was discussed earlier in this chapter, one effective instruction for overcoming instructional challenges that general and special education teachers face when teaching urban students is involving students in their own learning. Extensive and endless research on peer-mediated learning interventions (PMLI) has demonstrated strong positive effects on the urban learners’ academic and social development (Utley, 2001; Cochran et al., 1993; Giesecke & Cartledge, 1993). There are two types of peer-mediated strategies: tutoring systems and cooperative learning strategies. This chapter, however, will focus only on the first type.

Topping & Ehly (1998) consider the PMLI important because these interventions can raise students’ standards in all academic areas, are effective and cost-effective, and can be combined with other approaches such as computer-assisted technology. What is
equally significant is that PMLI produce social benefits by enhancing cooperation, dialogue and closeness among students and also by empowering them rather than de-skill them. Every strategy is thought to have a flip side to it. Maheady (1998) discusses some concerns of the PMLI that have been raised by several people. The first concern relates to the peer training requirements. Systematic peer training, ongoing evaluation and monitoring of the intervention require additional time for teachers. The second disadvantage deals with quality control requirements. Some teachers are concerned in maintaining quality control of peer teaching strategies because they need to circulate around the classroom and monitor students using the procedures correctly. This might result in the teacher’s failure to monitor critical components of the procedure (e.g. incorrect student responding). A third drawback is the content coverage. Teachers have always been under great pressure for covering curriculum context. Some of them might not be able to meet the curriculum demands because of the instructional pacing during PMLI activities. A last limitation of the PMLI deals with ethical concerns. Maheady (1998) presents the identification of three ethical concerns discussed by Greenwood and his colleagues (1995): accountability, peer competence and informed consent. Accountability refers to the correct implementation of peer mediated procedures in a way that all students benefit and that no one is affected negatively or is stigmatized. Peer competence involves the need to ensure that tutors are trained properly to carry their teaching roles. Informed consent must be obtained prior to involving students in PMLI activities.
Peer Tutoring

Peer tutoring is a widely known structured instructional system in which students are paired into dyads and take specific roles (tutor and tutee). Their roles include teaching each other academic knowledge, providing corrective feedback as well as positive reinforcement for correct responses. In general, peer tutoring increases students' on task behavior, provide a lot for opportunities of active student response (ASR), and increase the opportunity for providing correct responses and receiving corrective feedback. Peer tutoring enhances student motivation and increases the opportunities where they can get individualized help and encouragement. What is more, peer tutoring is a viable approach for including students with special needs in mainstream settings and increasing positive social relationships with students without disabilities (Scruggs & Mastropieri, 1998). Finally, peer tutoring creates more personal interactions between teacher-student as well as provides a collaborative framework that students need to work to accomplish an instructional goal (Maheady, 1998; Cooke, Heron & Heward, 1983). Kalkowski (1995) posits that peer tutoring has been effective for so many years because tutors and tutees speak a more similar language than do teachers and students with three main benefits: learning of academic skills, development of social behaviors and classroom discipline and enhancement of peer relations. Webb (1987) captured the essence of peer tutoring when characterizing it as “a vehicle for diversifying and redefining the role of the classroom teacher... a cooperative undertaking in which students share not only the answers but the process used to reach answers” (p. 1).

Peer tutoring systems were originally developed to prevent a lower level of academic performance among urban culturally diverse poor students (Greenwood &
Delquadri, 1995) and at the same time to improve their academic performance. Peer tutoring has been shown to be effective across a variety of academic subjects: math (Gardner et al., 2001), social skills (Kohler et al., 1985; Cochran et al., 1993), spelling (Delquadri et al., 1983; Maheady & Harper, 1987), reading fluency and comprehension (Brander, Magnelli, Oetjens, & Seagren, 2001; Sperb & Waller, 2002; Fuchs et al., 1997; Limbrick, McNaughton, Glynn, 1985; Fuchs, Fuchs, Thompson, Svenson, Yen, Al Otaiba, Yang, Mcmaster, Prentice, Kazdan, & Saenz, 2001), sight word vocabulary (Butler, 1999; Heron et al. 1983; Barbetta, Miller, Peters, Heron, & Cochran, 1991) and Spanish vocabulary (Wright et al., 1995). Strong effects have been found across students with disabilities, such as learning disabilities (Eiserman, 1988; Scruggs, & Osguthorpe, 1986; Chiang, Thorpe, & Darch, 1980), aggressive or disruptive behavior (Lazerson, 1980; Lazerson, Foster, Brown, & Hummel, 1988; Maher, Maher, & Thurston, 1998), autism (Kamps et al., 1994), students at-risk for reading failure (Simmons et al., 1994) and students having English as a second language (Greenwood et al., 2001). Peer tutoring works effectively across all education levels, from preschoolers (Brady, 1997), to elementary students (Greenwood et al., 1989), middle school students (Nazzal, 2002) and high school students (Maheady et al., 1987).

**Peer Tutoring Formats**

Peer tutoring has at least five formats, each of which shares several common components, training, implementation and evaluation considerations. The most widely used formats are the following:
Total Class Peer Tutoring: is the structured arrangement and orchestration of all peer tutoring dyads in the classroom. That is, the entire class is divided into pairs and participates simultaneously to master basic academic skills. Mastropieri & Scruggs (2000) report that the most significant feature of this peer tutoring format is the dramatic increase of engaged time students spend on task and the opportunities students get to respond. They propose a characteristic example of the beneficial time, students have when engage in total class peer tutoring:

Consider a 45-minute, fifth-grade reading class of 30, in which 1 student is called on to read aloud at a time. In this class then, each student will read aloud for an average of no more than 1.5 minutes per class. In a classwide peer tutoring program, however, students in this same class could read aloud for an average of as much as 22.5 minutes per class, an increase of 1500%! (p.258)

The positive effects of this type of peer tutoring are continuously documented in the educational research (Arreaga-Mayer, 1998; Greenwood et al., 1989; Greenwood & Delquadri, 1995; Kohler et al., 1985; Fuchs et al., 1997). This tutoring format offers a number of advantages. First of all, it can be used to teach skills across a wide range of academic subjects, age levels and ability. Research has found total class peer tutoring to be effective in increasing students’ sight word vocabulary (Heron et al., 1983; Cochran et al., 1993; Butler, 1999), math scores (Maheady & Harper, 1987), social skills (Kohler et al., 1985), spelling (Delquadri et al., 1983), reading (Kamps et al., 1994; Simmons et al., 1994; Fuchs, et al., 1997), Spanish vocabulary (Wright et al., 1995).
Second, it allows the teacher to focus on supervising students and provide individualized instruction rather than using the teacher-led instruction. Thus, her role shifts from primary deliver of instruction to facilitator and monitor of peer tutoring interactions (Maheady, Harper, & Mallette, 2001). Third, all students are more likely to stay on task and attend to tutoring procedures. Fourth, students’ participation is active because they have the chance to make continuous responses to ongoing curriculum. In other words, there is an increase of active student responding as opposed to the very few or no active responses made during the traditional teacher-led instruction. Fifth, students receive immediate corrective feedback for their responses and positive reinforcement. Sixth, students with aggressive or disruptive behaviors are more likely to stay on task and reduce the frequency of their outbursts. Seventh, total class peer tutoring is an effective strategy for including students with disabilities in mainstream settings and enable them to increase their social interactions with students without disabilities. Eighth, it is also an effective intervention for students at-risk for academic failure or dropping out who are concentrated mainly in urban settings (Arreaga-Mayer, Terry, & Greenwood, 1998; Cooke et al., 1983).

Miller et al. (1994) consider that total class peer tutoring presents some disadvantages such as the amount of time teachers need to prepare the program, train students as tutors, and coordinate the materials as well as the information produced. Overall the advantages outweigh the disadvantages and teachers are more likely today to need a justification for not implementing such an intervention than for using it (Mastropieri & Scruggs, 2000).
A variety of total class peer tutoring systems have been developed in the past three decades in the United States. The most widely known ones are: (a) the classwide peer tutoring developed by researchers at the Juniper Gardens Children's Project, University of Kansas in collaboration with regular teachers (Arreaga-Mayer et al., 1998; Arreaga-Mayer, 1998; Greenwood & Delquadri, 1995), (b) the total class peer tutoring developed by researchers of The Ohio State University (Cooke et al., 1983; Heward, Heron, & Cooke, 1982), (c) the Peabody Classwide Peer Tutoring by researchers of the Vanderbilt University-Peabody College (Mastropieri & Scruggs, 2000) and (d) classwide student tutoring teams (CSTT) developed by researchers at the SUNY-Fredonia college (Mahcady, Harper, & Mallette, 2001: 2003). All these tutoring systems have similarities as well as differences. Their similarities focus on using comparable methods for training students to use practice, testing and charting of their performance.

A study conducted by Heron et al. (1983) examined the effects of total class peer tutoring system on the acquisition of sight word vocabulary of first graders. After first graders had been trained in the tutoring procedures, they engaged in total class peer tutoring for five months. Results of the study showed that first graders could serve as effective tutors and tutees in the tutoring process. Students increased their sight word vocabulary and retained a high percentage of those words.

Wright et al. (1995) conducted a study of the effects of total class peer tutoring on the Spanish vocabulary acquisition and maintenance of students identified as at-risk or learning disabled. After a brief training program, students engaged in total class peer tutoring for around 20 minutes. Tutors were showing their partners a card with a picture on the front and the Spanish word at the back. When the card was presented, tutees had to
write the word in a response sheet. If he/she made a correct response, then praise would be given. If he/she made an incorrect response, then the tutor would give his partner the correct response after progressive trials of 2-, 3-, or 5-second time delay. When revealing the correct answer, tutee had to copy the answer by saying and spelling the word aloud so that the tutor could provide feedback and reinforcement. The tutoring lasted for 5 minutes for each partner. Once both partners had practiced 5 minutes each their Spanish vocabulary, a daily test was administered. Maintenance tests were conducted on a weekly basis and determined if the words were acquired by the students or not. Results of the tutoring program showed that students learned and maintained their Spanish vocabulary.

Greenwood et al. (1989) conducted a study of the longitudinal effects of total class peer tutoring on reading and mathematics of urban students from low-SES background. The peer tutoring system was implemented for four years by teachers in urban schools. Researchers also used a control group of students from high-SES background. Results of this longitudinal project showed that students performed significantly better on reading, math and language on Metropolitan Achievement Test (MAT) compared with the control group. By the end of Grade 4, the target students approached the national normative level in these three subject areas while the control group was found to perform on the MAT one standard deviation below this level.

*Small Group Peer Tutoring:* two procedural variations of this format exist. The first one is used by students with disabilities who need additional practice of skills. The second variation includes the whole class but on a rotating basis. Therefore, while the teacher works with one group of students, a second group of students would engage in small peer
tutoring. An advantage of this tutoring type is great flexibility of scheduling the teams and the time that can take place. However an important disadvantage is that the teacher will not be able to monitor the tutoring sessions because he/she will be working with the other group of students (Miller et al., 1994).

*Cross-Age Peer Tutoring:* is another effective format that involves the participation of two students, an older student and a younger one. Heron & Harris (2001) suggest that an appropriate age difference should be at least two years. Students without disabilities might tutor students with disabilities or at-risk for academic failure. However there were cases in the research where students with disabilities tutored other students with disabilities (Cochran et al., 1993; Scruggs & Osguthorpe, 1996). Miller et al. (1994) consider that the cross-age peer tutoring provides flexibility in teaching from a wide variety of subjects, students with various abilities such as general education students, students with learning disabilities, behavioral problems, mental retardation or emotional disorders. Tutors are usually skilled students who do not need a lot of training sessions. Disadvantages of this format might be the difficulty in scheduling and coordinating tutoring sessions because students come from different classrooms. Cross-age peer tutoring acquires external supervision. However, the tutee’s classroom teacher might not be able to monitor the tutoring sessions. Thus the lack of flexibility and the need for external help constitute this format difficult to implement.

A study conducted by Sperb & Waller (2002) investigated the effects of cross-age peer tutoring on improving reading fluency, sight word recognition skills and reading comprehension of third grade students when tutored by sixth graders. The program was
entitled “Great Leaps Reading: Building Fluency for Reading Success” and included four instructional components: phonics, sight words, graded reading passages and review. During the phonics instruction, tutees were presented with the most common and easily pronounced words and then progress to more difficult sounds and words. Students then had to move on to reading common sight words, found in phrases. Graded reading passages were used to practice the previous skills in context. The tutoring sessions lasted for 30 minutes and included three one-minute timings and 27 minutes review time. The instructional sequence of the program was the same for phonics, sight words and graded reading passages. The sequence was as follows: (1) the sixth-grade tutor modeled the correct pronunciation of difficult words before the beginning of each tutoring session, (2) then the student was asked to read as many sounds or words as possible in one minute timing. The tutor provided correct responses during the timed reading, (3) the tutor recorded all the tutee’s errors, (4) the tutor and tutee reviewed the student’s performance of the task, corrective feedback was given for the incorrect responses and then the tutee practiced the correct sounds and words. At the end, students would set a goal for the next session, (5) during the graded reading passages students had to read an entire page in one minute with two or fewer errors. If the tutee failed to do so, then the same passage was given at the next session. The passage was repeated until the student mastered it. Once it was mastered, the tutee could make a “Great Leap” by reading a more difficult page at the next session (6) the tutor recorded student’s progress on the progress chart (7) reinforcement was delivered for any leap to a new page. Pre and post tests showed that tutees increased their performance in sight word recognition, oral reading fluency and reading comprehension.
Barbeta et al. (1991) examined the effects of a cross-age tutoring program on the acquisition, generality and maintenance of sight words for six weeks. Participants were elementary tutees and high school tutors. After the tutors had been trained on following the steps of the tutoring procedure, they started teaching the sight word vocabulary to the elementary students. Sessions included two components: intensive individualized practice of sight words and practice and review other academic skills such as spelling. Results of the study indicated that high school students were effective and successful in teaching younger students the sight word vocabulary. Tutees were able to acquire and maintain a substantial number of sight words.

*One-to-One Peer Tutoring:* one-to-one peer instruction is necessary when the tutee needs to practice skill or has knowledge deficits. Tutees are usually paired with tutors that are highly skilled or also need remedial support. The dyad practices the procedure in a reciprocal form. That is, they both teach and receive tutoring by their partners. The procedures of this type are similar to total class peer tutoring, small- group tutoring and cross-age tutoring. Miller et al. (1994) suggest that this format provides flexibility in scheduling it and in choosing a variety of academic subjects. It also includes a specific and structured procedure. Disadvantages might be the time needed to train students individually as well as monitor the tutoring sessions.

*Home-Based Peer Tutoring:* is not a widely used format of peer tutoring. In this type, parents or siblings serve as tutors for the student. Prior to the implementation of the program, the parents need skill training by showing them the components of the system,
how to manage the system, how to give prompts and reinforcement to their child and how to evaluate the program. Parents must commit to conduct the tutoring sessions under a game-like atmosphere (Heron & Harris, 2001). Advantages of this format are the active involvement of family members in student learning, and maintenance of school year knowledge during holiday times.

Benefits to Tutors

Heron & Heward (2000) list several advantages for using students as tutors. First, students can teach each other skills in a highly effective manner. Tutors often aim for higher efficacy because they believe greater efforts may result in achievement equal to that of a tutor. Second, tutors can benefit academically by teaching. It is well known that teaching knowledge equals to double learning (Webb, 1987; Jenkins & Jenkins, 1981). Gartner & Riessman (1994) found that when tutees had to think about their possible roles as tutors, they earned significantly higher grades in academic subjects in which they tutored, passed more courses and had better attendance records. Third, a tutor works on individualized intensive one-to-one basis with a tutee without having the rest of the class to work on independent seatwork. Fourth, tutors get a lot of opportunities for ASR, provide corrective feedback and reinforcement to their peers. Fifth, all students can get the opportunity to be tutors. Tutoring becomes an excellent tool for including students with mild to moderate disabilities in the learning process. Finally, tutors while working in pairs have the chance to be taught and teach valuable social skills that are not usually included in the school’s curriculum or teacher’s instruction. Along these lines, Cohen, Kulik, & Kulik (1982) found out, after conducting a meta-analysis of 65 evaluations of
different school tutoring programs, tutors gain a better understanding of and develop more positive attitudes toward subject matter covered in tutorials. They also resulted in benefits on tutors cognitive and affective levels. However, researchers concluded that participation in tutoring programs had little or no effect on tutors’ self-esteem. On the contrary, other researchers consider that tutors’ self esteem is increased while participating in tutoring (Kalkowski, 1995; Miller et al., 1994; Giesecke & Cartledge, 1993). Webb (1987) states that by helping their partners tutors reinforce their own knowledge and skills which in turn builds their self-confidence and self-esteem. It also develops a sense of responsibility as a result of helping others to learn.

Gartner & Riessman (1993) state very clearly the importance of training students as tutors. It is critical to expand the opportunities to have all students experience the tutor role especially students with academic, behavioral and social problems including teen pregnancy, delinquency, substance abuse, and reading failure. Being a tutor means learning by teaching, developing as a tutor, providing reinforcement and corrective feedback, transforming school culture. They learn how to learn by reworking the material and present it in a way that their partners can understand (Gartner & Riessman, 1994). Thus their metacognitive ability is developed.

Heward et al. (1982) recognize the importance of tutors in the tutoring program by adding another component called Tutor Huddle in the tutoring process. This component is critical as it improves tutors’ ability to teach their partners the academic material. Researchers, after incorporating the Tutor Huddle in the tutoring program for over 5 months in a first-grade classroom, concluded that it had immediate and real consequence on tutors’ eager participation and high levels of on-task behavior. This is
quite reasonable for students at the primary level because having the opportunity to learn and practice the material prior to teaching it, results in strong desire of participation in the procedure. Therefore, the Tutor Huddle produces positive outcomes in the tutoring process and because of its functionality has been characterized as “a tutoring system within a tutoring system” (p.121).

A research study conducted by Nazzal (2002) examined the effects of peer tutoring middle school students at-risk for dropping out of school. Her results verified one more time the positive effects on tutors’ academic performance, perceptions of success and ability in school as well as feelings of alienation. Students at-risk for dropping out indicated in this study that tutoring provided them with motivation to attend school and it increased their scores in standardized tests.

Nevi (1983) conducted a survey in order to find an answer to the question “Why does peer tutoring help tutors?” He suggested that tutoring assists tutors more than their peers because of the time they spend on the activity which, hence, becomes a significant variable. Serving as a tutor also improves on-task behavior and reduces any disruptive behaviors. A study carried out by Lazerson (1980) aimed at investigating the benefits aggressive and withdrawn students would receive by participating in peer tutoring. Aggressive and withdrawn students were paired together in reciprocal peer tutoring. Results indicated that both students not only gained in learning but also their behavior improved. That is, the aggressive tutor had to settle down to reach the withdrawn tutee and the withdrawn tutor had to open up more to teach the aggressive tutee. What is particularly interesting is that these pairs demonstrated the highest gains compared to aggressive-aggressive and withdrawn-withdrawn pairs.
Benefits to Tutees

Tutoring helps not only those who give, but also those who receive. The benefits for tutees from the tutoring procedure are enormous. First of all, tutees benefit both academically and socially through their involvement in peer tutoring. Kalkowski (1995) presents a discussion by Damon and Phelps (1989) regarding the differential effects for students taught by peers compared to teacher directed instruction. They suggest that the interaction between peers is more balanced and lively since both tutor and tutee are closer in knowledge and status. Students tend to take a more active role in learning as opposed to passive roles evidenced in the teacher-children instruction relationship. Therefore, being in peer relations, tutees feel more open to express opinions, ask questions and risk untested solutions. Gartner & Riessman (1993) suggest that tutees benefit from tutoring programs by increasing their motivation to learn, having well-trained tutors to heighten their learning and increasing their self-esteem by knowing that they are going to become tutors too.

Scruggs & Osguthorpe (1986) examined the effects on academic achievement in having older students with disabilities teach younger students with disabilities. Researchers found that tutors had functioned effectively by gaining significantly in their word-attack skills while tutees had demonstrated not only academic gains but also significant improvement in attitudes toward school. In a study carried out by Butler (1999), fourth- and fifth-grade students with mild to moderate disabilities participated in peer tutoring by teaching each other sight words. The results showed that overall students made an average gain of one grade level in the eight-week period of the study. In addition, students’ academic gains were not impeded by their cognitive level of
functioning. In fact, students with the lowest IQ scores made as much progress as their peers with higher IQ scores in terms of the overall percentage of words learned.

Maheady & Harper (1987) found that ninth and tenth grade students with and without mild disabilities demonstrated immediate and systematic gains in their weekly math test performance while participating in peer tutoring. Students’ gains resulted in higher grades. In fact the percentage of students receiving “A” grades rose above 40% while failing grades were reduced. What is also interesting is that some students with mild disabilities maintained their high performance about 90%, while students without disabilities never received a failing grade when they were on peer tutoring intervention.

In another study by Delquadri et al. (1983), positive effects of a peer tutoring spelling game were demonstrated on the spelling performance of third grade students with and without learning disabilities. Researchers found that low achieving students had increased their performance in weekly spelling tests and had reduced the number of spelling errors to the same levels as those that had been achieved by average peers. Delquadri and his colleagues considered that this tutoring game offered several advantages. First, teachers could adopt commercially prepared spelling materials for the tutoring sessions. Second, all students in the class participated and benefited from its implementation and evidence of this was the reduction of the number of spelling errors for all. Third, the cost of the program was minimal. Finally, the intervention was easy to implement and administer by the teacher.

Elementary students, who have English as their second language (ESL), seem also to benefit from the peer tutoring procedures. This was evident in the study conducted by Greenwood et al. (2001) with minority ESL students in an urban setting. The students’
mean scores in spelling and vocabulary at the pretesting was 18.8% and at the posttesting was 78.9%. Hence, minority students received again 59.8% while participating in peer tutoring. Over a period of 15 to 21 weeks, ESL students made considerable progress mastering the curriculum material.

Peer tutoring has also been shown to work effectively with poor low achieving African-American students in urban schools. Studies conducted by Cochran et al. (1993) and Gardner et al. (2001) demonstrated that peer-mediated interventions, such as the peer tutoring, constitutes a valuable means for improving those students academic performance in urban settings characterized by large numbers of student underachievement. Cochran et al. (1993) showed that African-American male students with behavioral disorders at fifth and second grade had increased their sight word vocabulary after participating in peer tutoring. What is also interesting is that all four tutees had greater percentages of sight words than their comparison group. The study confirms the enormous potential of peer tutoring on the academic development of students who are at the greatest risk in urban settings. It also supports that low-achieving students with behavioral disorders can become effective tutors.

Likewise, Gardner et al. (2001) demonstrated the effects of peer-mediated interventions on African-American elementary male students. What is unique about this study is that researchers demonstrated the positive effects of peer-mediated instruction under a partnership of several people such as educational researchers, volunteers from church, public school officials, and preservice general and special education students. Using a combination of approached such as DI, reciprocal peer tutoring system, group-
orientated contingencies, and positive classroom management strategies, the researchers showed significant academic gains among urban low-achieving students.

**Benefits to Teacher**

Tutoring programs not only benefit students but also profit classroom teachers. Delquadri and his colleagues (1983) after implementing a tutoring spelling game for 27 weeks and showing dramatic improvements in students’ performance, the classroom teacher decided to generalize the tutoring procedures in math. Furthermore, researchers note that the teacher’s satisfaction was so high that she instituted the same procedures the following school year.

During peer tutoring, peer tutors assume responsibility for teaching the intended academic material or providing remedial instruction. In this way, the teacher’s role changes from providing direct instruction to supervising students. Hence, her role is administrative and consultative (Webb, 1987; Miller et al., 1994). In addition, teachers can use the peer tutoring for addressing the diverse learning needs in their inclusive classrooms (Mastropieri & Scruggs, 2000). It is an excellent tool that helps general education teachers to include students with disabilities in general classrooms.

**Summary**

Current demographic changes in the educational field include the continuous growth of urban elementary schools serving a more diverse student population with greater academic and social needs. Despite the enactment of a series of laws requiring the provision of equal educational opportunities to minority students, these efforts seem to be postponed dreams (Utley & Obiakor, 2001a). National investigations by the U.S.
Department of Education and other national councils have revealed the high rate of school drop outs, the disproportionate representation of minority students in special education and the academic failure of urban students to meet the state and national standards across basic subjects.

The solution to these problems greatly rests with teachers that teach in urban settings. Improving their quality of instruction in their classroom would yield great improvements in the urban learners’ academic and social performance. Effective instruction is characterized by high expectations, clear goals and objectives, and the use of a variety of research-based best practices (e.g. Direct Instruction, peer-mediated interventions, early intervention, active student response methods-choral responding, response cards, guided notes, cooperative learning) that have structured procedures, fast pace, lots of opportunities for active student responding, positive reinforcement, systematic corrective feedback and error correction.

One of these best practices, total class peer tutoring, is used in this study to investigate its effects on the acquisition of sight words, reading fluency, reading comprehension and maintenance of second and third grade urban students. Research shows that total class peer tutoring is a powerful instructional procedure that actively engages all students in a classroom and that promotes mastery, accuracy and fluency of the content material (Arreaga-Mayer, 1998). Research studies also demonstrate the positive effects of this procedure on urban learners’ academic and social performance. The current study aims to verify further these positive outcomes on urban learners’ academic performance as well as assess the effects of this intervention on reading fluency and comprehension with grade level text.
CHAPTER 2

METHOD

This chapter focuses on the experimental methodology of this study. It includes a description of the following: participants, setting, experimenter, materials, definition and measurement of the four dependent variables, interobserver agreement, experimental design, procedures with pretesting and post testing, and measurement of social validity.

Participants

The participants of the study were six students in the second and third grade. During the course of the study, the entire class consisting of eight additional students participated in peer-tutoring, however, only the six participants were targeted for data collection. The criteria for selecting the participants for this study were: (1) students were considered to be academically at-risk for reading failure based on their low performance in reading fluency, comprehension, and sight word vocabulary as indicated by the pretest scores, and (2) they had participated in previous studies involving similar interventions and were chosen again for followed through.

Table 2.1 presents the descriptive information for the students. Two students were identified with specific learning disabilities and were receiving special education services in a resource room part of the school day. One of them was also diagnosed with Attention
<table>
<thead>
<tr>
<th>Student</th>
<th>Grade Level</th>
<th>Race</th>
<th>Gender</th>
<th>SES Status</th>
<th>Age&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Disability&lt;sup&gt;b&lt;/sup&gt;</th>
<th>National Grade Percentile&lt;sup&gt;c&lt;/sup&gt;</th>
<th>DRA&lt;sup&gt;d&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erin</td>
<td>Second</td>
<td>African-American</td>
<td>Female</td>
<td>Low</td>
<td>7-6</td>
<td>LD</td>
<td>8</td>
<td>Below 4</td>
</tr>
<tr>
<td>Steven</td>
<td>Second</td>
<td>African-American</td>
<td>Male</td>
<td>Low</td>
<td>7-1</td>
<td>At-risk</td>
<td>10</td>
<td>Below 4</td>
</tr>
<tr>
<td>Irena</td>
<td>Second</td>
<td>African-American</td>
<td>Female</td>
<td>Low</td>
<td>7-5</td>
<td>At-risk</td>
<td>23</td>
<td>Below 6</td>
</tr>
<tr>
<td>Dignity</td>
<td>Second</td>
<td>African-American</td>
<td>Female</td>
<td>Low</td>
<td>7-5</td>
<td>At-risk</td>
<td>6</td>
<td>Below 4</td>
</tr>
<tr>
<td>Dan</td>
<td>Third</td>
<td>African-American</td>
<td>Male</td>
<td>Low</td>
<td>8-3</td>
<td>At-risk</td>
<td>2</td>
<td>Below 12</td>
</tr>
<tr>
<td>Susan</td>
<td>Second</td>
<td>African-American</td>
<td>Female</td>
<td>Low</td>
<td>7-1</td>
<td>LD and ADHD</td>
<td>20</td>
<td>Below 6</td>
</tr>
</tbody>
</table>

Notes:

<sup>a</sup> Students' ages as of October 8, 2003.

<sup>b</sup> LD = Learning Disabilities, ADHD = Attention Hyperactivity Disorder.

<sup>c</sup> The Metropolitan Achievement Test (8<sup>th</sup> ed.), a standardized norm-referenced assessment, was administered towards the end of the previous school year 2002-2003. The percentile rank scores represent the Total Reading area which includes sounds and print, reading vocabulary and reading comprehension. All scores show students' national grade percentile ranks compared to the test's norm group. The percentile ranks range from the low score of 1 to the high score of 99, with the average score of 50. Students are placed in one of the three percentile bands according to their performance on the test: below average, average, and above average.

<sup>d</sup> Reading Achievement scores were obtained by the resource room teacher using the Developmental Reading Assessment (DRA) on September 3, 2003.

Table 2.1. Students' characteristics based on grade level, gender, age, and reading scores.
Hyperactivity Disorder (ADHD) and she was receiving Adderall medication once per day. The medication was given by the student’s grandparents, who were the child care providers. According to both students’ Individualized Education Plans, they were provided with special education services in the least restrictive environment; in the general education classroom with the special education services provided outside the regular classroom at least 51% of the time and no more than 60% of the time. The student with ADHD was also receiving speech and language services 20 minutes per week.

The students’ scores in the MAT8 and DRA assessments indicate that they were performing below grade level and they were considered at risk for reading failure by their teachers. At the beginning of the school year, the DRA score for second graders was expected to start from 18 and reach 29 by the end of the second grade. For the third-grade student, DRA score at the beginning of the school year was expected to start from 30 and get to 39 by the end of the third grade. Information in Table 2.1 indicates that students performed well below average on the reading area.

The six target students were paired for the peer tutoring intervention based on their scores on pretesting. Parental consent for the target students was obtained prior to the study (see Appendices A & B). Teacher’s consent for participation in the study was also obtained prior to the study (see Appendices C & D).

Setting

The study took place in an urban public elementary school in Columbus, Ohio. The school had an enrollment of 148 students from preschool through fifth grade. The student ethnicity was composed of 84.5% African Americans, 12.8% Caucasians, 0.7%
Hispanics, 0.7% Native Americans and 1.3% Asian Americans. There were 1.4% of students receiving free or reduced lunch. The study was conducted in two settings. At the beginning of peer tutoring, an unoccupied quiet space was chosen in the parent resource room. When the total class peer tutoring started, the setting was changed to the general education classroom housing students from both the general education classroom and the special education classroom. During the total class peer tutoring the general education teacher as well as the special education teacher were present and helped to facilitate the peer tutoring.

The peer tutoring sessions were conducted three times per week. Peer tutoring sessions, conducted before the total class peer tutoring, took place on Mondays, Tuesdays and Thursdays from 9:00 to 9:30 am. This research time was chosen by the general education and special education teachers as the best times for their students to be pulled out from their classroom because no whole-class academic instruction was occurring at that time. When the total class peer tutoring sessions began, the days were changed to Mondays and Tuesdays from 10:00 to 10:30am and Wednesdays from 1:30 to 2:00pm to accommodate the full class schedule. Occasionally, this schedule was changed due to time conflicts (e.g., school holidays, parent-teacher conference day, professional development day, state and school district testing).

**Experimenter and Research Assistants**

The primary experimenter for this study was a first year graduate student in her master’s program in special education at The Ohio State University. She earned her Bachelor’s degree in elementary education at the University of Cyprus in Nicosia,
Cyprus. One undergraduate student, one graduate student and a post-doctoral student at The Ohio State University were also involved in this study serving as second observers. The general education teacher conducted all the total class peer tutoring sessions. She had a master’s degree in elementary education with three years of teaching experience. She participated in the study as part of her course requirements for teacher licensure.

**Definition and Measurement of Dependent Variables**

The study measured four dependent variables: (a) number of sight words acquired, (b) number of sight words maintained over time, (c) number of words read per minute, and (d) number of words identified in a cloze comprehension procedure.

**Number of sight words acquired**

A sight word was considered acquired when the student could not read the word within three-second timing during pretest but he/she could read it within three seconds after instruction took place. In other words, acquisition of a sight word was defined as the word read correctly by the student within three seconds after the word had been presented on a 3” x 5” index card. For example if the word “those” was printed on the card, presented to the student and the student answered “those” within three seconds, then the word was considered correct. If the word “those” was presented to the student and he/she said “these” or any other word, or did not respond within three seconds, then the word was recorded as incorrect. Variations in the student’s pronunciation, articulation and dialect were not counted as errors. Using the previous example, if the student said
“thoouth”, it was counted as correct. An unknown word was defined as the student not being able to read the word correctly within three seconds after the word had been presented visually.

Number of sight words maintained across time

After acquiring ten sight words during peer tutoring, the ten words were placed in a student’s individual folder in order to be assessed for maintenance two to three weeks later. According to Cooper et al. (1987), “maintenance is defined 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).

During bi-weekly maintenance assessments, a sight word was defined as maintained if the student read the word correctly within three seconds of presenting the word printed in black ink on 3” X 5” index cards. The words counted as incorrect were re-introduced to the student during the subsequent weekly pretests.

Number of words read per minute

The purpose of assessing reading fluency was to determine whether or not students were able to generalize the basic sight words that had been practiced and acquired during peer tutoring sessions to an untrained context of sentences forming a passage. The passages were obtained from the Dynamic Indicators of Basic Early Literacy Skills™ (DIBELS 6th ed.) and they were designed to monitor students' progress on oral reading fluency. They are a standardized individually administered test of accuracy and fluency with connected text. According to Good and Kaminski (2002), the
passages are calibrated as benchmark goals for each grade level. Thus in this study, the DIBELS Oral Reading Fluency (DORF) second grade-level passages were used in order to assess the reading fluency of the second grade target students. The DORF third grade-level passages were used for assessing the third grader’s reading fluency.

Students’ reading fluency rate was defined as the number of correct words read per minute in a passage. A word was considered correct: (a) if the student read the word correctly in the context of the sentence within three seconds of presenting the word, and (b) if the student corrected the word within three seconds. For example if the sentence was “It was a live fish.” and the student said “It was a liv...live fish” within three seconds then the word “live” was counted as correct because the student self corrected the word within the given time. A word was defined as incorrect or error when: (a) a word was omitted (b) a word was read correctly but in the wrong order (For example, the sentence was “I drank too much” and the student read “I too drank much.” The words “drank” and “too” were counted as incorrect, although they were read correctly, because the word order was wrong, (c) a word was mispronounced in the sentence (For example, the sentence was “I ate too much” and the student said “I eat too much.” The word “ate” was counted as incorrect because it was mispronounced and (d) a student hesitated or struggled with a word for more than three seconds.

However there were words that were not counted as incorrect and were ignored in scoring when the student: (a) repeated a word (b) inserted a word (c) read a word with an imperfect pronunciation because of dialect, articulation or second language interference. In addition to the above, a discontinue rule was followed as outlined in the DIBELS procedures. According to this rule, if the student did not read any words correctly in the
first row of the passage, then the experimenter discontinued the passage and recorded a score of 0.

**Number of words identified based on the cloze comprehension procedure**

Reading comprehension was measured by the number of missing words the students could identify correctly. The DORF second and third grade level passages were used for the second and third grade students respectively. In each passage five words were identified for reading comprehension and then they were deleted from the sentences. The criteria, used for identifying and deleting five words from each passage, were based on the cloze procedure (Grant, 1979; Schoenfeld, 1980; Ellington, 1981).

Cloze procedure is a tool for measuring student’s readability. Ellington (1981) defines the cloze procedure as “a method of systematically deleting words in a prose selection and evaluating the success of a reader in accurately supplying the deleted words” (p. 94). The cloze procedure was selected in the particular study to measure students’ reading comprehension on DORF passages because it provided a quick estimate of the relative difficulty of a particular text for the target students. Furthermore, it required students to handle the context of the passages as well as the semantic-syntactic constraints of the language. In order to complete the cloze passages, students had to simultaneously process semantic (word meaning) and syntactic (word order) clues.

The DORF passages were constructed to cloze reading passages based on the following criteria: (1) appropriate reading materials were used according to students’ grade level, (2) the first sentence was always left intact, (3) a constant number of five words was chosen from each passage, (4) random deletions were applied. Words were
deleted in a random, unsystematic way because the purpose of the cloze passages was to test students’ general comprehension (Schoenfeld, 1980), and (5) the five random deletions were selected from different types of words such as articles, pronouns, infinitives, prepositions, conjunctions, verbs and sometimes nouns. The selection of a random deletion was solely based on the fact that the student would have a very narrow range of possible answers for each missing word.

DORF progress monitoring passages were administered twice in this study. When a passage was re-administered to participants, five words were chosen and deleted each time for the purpose of assessing comprehension. Specifically the five new words were selected and omitted from paragraphs that participants had not read on the first attempt. Therefore the students were reading the same passage for the second time but starting from a different point in the passage that had not been read before.

On the second reading, participants were asked to identify the missing words. A missing word was correct when the student identified: (a) the exact original missing word within five seconds either from the first or the second count of reading the sentence, (b) a word that was similar to the original word (i.e. identifying a synonym of the exact word), and (c) any word of the correct class that made semantic sense. For example, if the sentence was “My best friend ____ Tim” and the student identified the missing word as “is,” then the answer was scored as correct. The response was scored as correct if the student identified “was” as the missing word. A missing word was incorrect when the student: (a) identified a word that did not match in the context of the sentence, or (b) did not provide a word within five seconds of reading the sentence for the second time. For example if the sentence was “My best friend ____ Tim,” and the student identified “the”
as the missing word, then the answer was scored as incorrect. If the student responded with the word “is” after five seconds of being presented with the sentence for the second time, the response was scored as incorrect. In the event that the student said more than one word, the experimenter prompted the student to say only one word. If the student identified a similar word, the experimenter requested the student to try another word. From the previous example “My best friend _____ Tim” if the student gave the answer “was,” as opposed to the original word “is,” then the experimenter told him/her “The answer could be “was.” Try another word.” On both cases (i.e. saying more than one word, saying a similar word), the student’s final answer was counted either as correct or incorrect.

Independent Variable

A peer tutoring procedure composed of the following components was implemented: tutoring of basic sight words, prompting, praising, testing, and charting. This study observed, measured, and recorded the effects of the peer tutoring procedure on students’ acquisition of basic sight words, reading fluency rate during one-minute timings, reading comprehension and maintenance of sight words.

Procedures to Ensure Accuracy

Peterson et al. (1982) state that the primary focus of applied behavior analysis is establishing a functional relationship between the dependent and independent variable. In order to achieve this relationship, accurate and reliable descriptions and observations of
both the independent and dependent variables are necessary. The current study focused on ensuring the integrity of both variables in the following ways:

**Dependent Variables**

Interobserver Agreement (IOA) measures were collected by the experimenter and a second observer for all the dependent variables and for each target student: number of sight words acquired, number of words read per minute, number of correct missing words and number of sight words maintained. Interobserver agreement data were also collected for the weekly pretests of sight words. IOA measurements were collected for all the target behaviors during baseline and intervention. IOA data were recorded for at least 30% of the study sessions. The experimenter and a second observer independently and simultaneously recorded the correct/incorrect responses of the target behaviors during participants' individual assessments, using a separate recording form. A formula, measuring permanent products (Cooper et al, 1987), was used to establish the percentage agreement between the experimenter and the second observer:

\[
\left( \frac{\text{agreements}}{\text{agreements} + \text{disagreements}} \right) \times 100 = \% \text{ of agreement}
\]

**Independent Variable**

The procedural integrity of the independent variable was monitored by developing procedural reliability checklist of peer tutoring containing all the tutoring behaviors that tutors needed to perform during intervention. The specific tutor behaviors are provided as
a checklist in Appendix M. Procedural integrity assessments were conducted for at least
30% of the peer tutoring sessions. The formula used for measuring the intervention
integrity for each tutor was:

\[
\left( \frac{\text{# of behaviors performed correctly}}{16 \text{ tutor behaviors}} \right) \times 100 = \% \text{ of treatment integrity}
\]

Another procedural reliability checklist was developed to ensure that all
procedures for reading fluency and reading comprehension assessments were followed
accurately during baseline and intervention (see Appendix N). The integrity assessment
for reading fluency was obtained from the official administration manual of DIBELS\textsuperscript{TM}
(Good & Kaminski, 2002) and the integrity assessment for reading comprehension was
developed by the experimenter. A second observer evaluated the experimenter’s
behaviors on both assessments for at least 30% of the study sessions. The formula used
for measuring experimenter’s behaviors on reading fluency and reading comprehension
was:

\[
\left( \frac{\text{# behaviors performed correctly}}{14 \text{ behaviors}} \right) \times 100 = \% \text{ treatment integrity}
\]

Observer Training

Interobserver agreement is influenced by diverse sources of artifact, bias and
complexity of the assessment procedures (Kazdin, 1977). In order to reduce the
likelihood of having any of those factors influencing IOA measurements, training
sessions were conducted for the two second observers (undergraduate and graduate
students). During training sessions explicit definitions of the target behaviors were presented as well as a brief description of the peer tutoring intervention. The description of the treatment was necessary for the observers to record precisely the tutor behaviors onto the procedural reliability checklist. Examples of reading passages were shown and a demonstration of the recording procedure with all its notations was introduced. Examples and non-examples of reading comprehension answers were also demonstrated. The procedural reliability checklist for reading fluency and reading comprehension was given and discussed with second observers as to avoid any observation drift from the procedures being measured.

**Materials**

*High Frequency Sight Words*

As part of the Language Arts lesson, the general education teacher selected five high frequency sight words from a list of sight words for instruction each week. The list was developed by the second-grade teachers of the school. The experimenter was provided with this list as to prepare the instructional material for the peer tutoring sessions (see Appendix W).

Two additional lists of weekly high frequency words were used by the experimenter as to identify and include five unknown words in students' weekly set of words. The first list was taken from the Curriculum Reading Guide of Columbus Public Schools and included second-, third-, fourth- and fifth-grade level basic sight words. The second list included basic Dolch sight words (see Appendix X).
DIBELS™ (6th Edition) Progress Monitoring of the Oral Reading Fluency

The experimenter used a standardized set of passages and administration procedures to assess students’ progress on reading fluency. The standardized passages were obtained from the official website of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) (Dynamic Indicators of Basic Early Literacy Skills, October 10, 2003, http://dibels.uoregon.edu). A set of second-grade level passages were used to assess the second graders’ reading level and a third-grade level set was used to assess the reading skills of the third-grade participant. Each grade level standardized set included twenty progress monitoring passages and a scoring booklet (see Appendices E & G). The reliability of different DIBELS passages, drawn from the same grade level, ranged from 0.89 to 0.94. Test-retest reliabilities for elementary students ranged from 0.92 to 0.97 (Good & Kaminski, 2002).

The DIBELS™ second- and third-grade level passages were also used for assessing students’ reading comprehension. The experimenter deleted from each grade level passage five words and the students were required to identify the five missing words. The removal of those words was based on the criteria of cloze procedure (see Appendices F & H).

DIBELS™ (6th Edition) Oral Reading Fluency Benchmark Assessments

Two benchmark assessments were conducted by the experimenter to evaluate students’ grade level, based on the DIBELS benchmark goals. Each grade level benchmark assessment included three one-minute timing passages for the student and a scoring booklet for the experimenter.
**Constructed Paragraphs**

Five passages were developed by the experimenter and each passage included two paragraphs. The ten paragraphs were administered separately. All the passages contained 20 basic sight words that students had mastered during previous peer tutoring sessions. For passages 1 to 3, the students had 100% of the 20 sight words in their individual bank of peer tutoring words. For passages 4 and 5, each student had at least 45% of these 20 sight words in his/her bank of words. The paragraphs were tested for readability based on the Flesch-Kincaid Grade level. The readability grade level range of the paragraphs ranged from 2.3 to 3.7 (see Appendix I).

**Woodcock-Johnson III Tests of Achievement (WJ III ACH)**

A set of individually administered norm-referenced subtests, was chosen for the pretesting and post testing of this study in order to determine the participants’ reading abilities before and after intervention. Four standardized tests were selected from the WJIII ACH: the letter-word identification test, the reading fluency test, the passage comprehension test and the word attack test.

Letter-Word Identification subtest measured student’s word identification skills. It has a median reliability of 0.91 in the age 5 to 19 range and 0.94 in the adult range. Reading Fluency subtest measured student’s ability to quickly read simple sentences, decide if they are true or false and circle the right answer. Its median reliability is 0.90 in the age 5 to 19 range and 0.90 in the adult range. Passage Comprehension subtest evaluated initially student’s ability to match a picture of an object with a rebus. Then, items included multiple-choice format which require students to point to the picture.
represented by a phrase. The remaining items require students to read a short passage and identify a missing key word. Median reliability for this subtest is 0.83 in the age 5 to 19 range and 0.88 in the adult range. Word Attack subtest measured students’ skill in applying phonic and structural analysis skills to the pronunciation of unfamiliar printed words. It has a median reliability of 0.87 in the age of 5 to 19 range and 0.87 in the adult range (Woodcock, McGrew, & Mather, 2001).

**Parent/Guardian Consent Letters and Forms**

A letter and a form were sent to the parents/guardians of the target students to obtain their consent for students’ participation in the study. Both of them were written on university letterhead with the appropriate signature (see Appendices A & B).

**Teacher Consent Letter and Form**

A letter and a form were given to the general and special education teachers of the students involved in the study. The letter and the form were written on university letterhead with the appropriate signature (see Appendices C & D).

**Parent Satisfaction Questionnaires**

A questionnaire consisted of a 7 item Likert-scale and one open-ended question was given to parents/guardians of the students. Parents/guardians were asked to rate the items by choosing Agree Strongly, Agree, Disagree or Disagree Strongly. At the end of the questionnaire, there was one open-ended question where the parents/guardians were
given the opportunity to write any additional comments or thoughts about the program (see Appendix J).

Teacher Satisfaction Questionnaires

A questionnaire with 12 statements and two open-ended questions was given to the general and special education teachers. On the 12 statements, teachers were asked to circle a number from 1 to 4 that would represent the degree to which they agree or disagree with each statement. One open-ended question asking teachers to state any modifications that they would make if they were to implement the program in the future was included. The other open-ended question was left for writing any additional thoughts and comments about the intervention (see Appendix K).

Student Satisfaction Questionnaires

A questionnaire was developed to investigate students’ satisfaction for participating in peer tutoring. The questionnaire had 12 questions. On the first six statements, students could express their opinion by choosing “Like very much” or “Didn’t feel anything” or “Didn’t like.” The next 6 questions were open-ended and students were required to express their thoughts and feelings about the components of the intervention (see Appendix L).

Procedural Reliability Checklists

Two procedural reliability checklists were used. One of them assessed the tutors’ behavior during peer tutoring procedure and the other assessed the experimenter’s
integrity in following the procedures for the DIBELS™ Oral Reading Fluency and for the reading comprehension. In the first integrity assessment the second observers were required to check the “YES,” “NO” or “N/A” box that corresponded to the tutor’s behavior at that time. In the second integrity assessment the observers needed to check off whether or not the experimenter’s procedures were fine or needed practice (see Appendices M & N).

Data Collection Forms

A datasheet was created to record students’ acquisition of the ten sight words, reading fluency rate and reading comprehension words. Another data collection form was designed to record maintenance of sight words. In both forms the experimenter and the second observers marked the correct and incorrect responses (see Appendix O).

Training Script in the form of Lesson Plan

A training script in the form of a lesson plan was used to include all the objectives, materials, procedures and time needed for training all the students in the general education classroom. The purpose of the lesson plan was to ensure an accurate and consistent sequence of the total class peer tutoring procedure followed by the general education teacher and the experimenter (see Appendix P).

Huddle Signs for Total Class Peer Tutoring Training

Five signs were prepared for the huddle areas of the total class peer tutoring. The signs contained the first five alphabet letters colored and enlarged: A, B, C, D, E. The
purpose of these signs was to indicate the huddle groups’ assigned areas during huddle time.

Good News Report
A report was sent to parents weekly to inform them about their children’s progress during the weekly peer tutoring. Included in the report was the number of words learned by each student as well as a description of their behavior during the entire week’s peer tutoring (see Appendix Q).

High Frequency Word Flashcards
Plain index cards with 3” x 5” dimensions were used for preparing the high frequency word flashcards. A word was printed with a black permanent marker in large bold lowercase letters on one side of the card. On the other side, the same word was printed again at the upper left corner of the card for the tutor to see the word read by the tutee and a 2”-by- 5” matrix was stamped for recording correct and incorrect attempts to read the word was displayed (see Appendix R).

Folders
Manila office folders with 8.5” x 11” were used for preparing the peer tutoring folders. At the front side of the folder a testing page was placed with the “😊” and an “X”. During testing time, tutors were asked to place the correct responses on the “😊” pile and incorrect responses on the “X” pile (see Appendix S). On the inside left side of the folder the progress row chart was placed, resembling a path with 100 boxes.
Tutees were coloring one box on their chart for each card that was read correctly (i.e. the card was placed on the "😊") (see Appendix T). On the inside right side of the folder, there were two pockets: one pocket was labeled with the word “GO” and the word was put in a bubble of a green cartoon. The second pocket was labeled with the word “STOP” in a red hexagon cartoon. On the margins of this side, a tab was placed containing the name of the student (see Appendix U). At the back side of the folder there was a pocket with the word “Student Star!” in a gold star cartoon. A 3” x 5” plain card with the student’s name was placed in the star card pocket and served as a star card. Each star card contained twenty boxes, two matrices of “2-by-5”. Under the star card pocket there was an alphabet letter (i.e. A, B, C, D, E) indicating the student’s huddle assigned area (see Appendix V).

**Timer**

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

**Crayons**

Red and blue splash crayons were used by the students to record the correct and incorrect responses at the back side of cards and to color the boxes on the progress row charts after the end of testing phase of peer tutoring.

**Experimental Design**

A multiple baseline design across subjects was selected for this study. According to Cooper et al. (1987), a multiple baseline design enables the concurrent measurement of
the target behavior across multiple subjects and allows direct monitoring for
generalization of behavior change. In addition, this design does not require the
withdrawal of an effective intervention in order to demonstrate experimental control.

Six target students were paired for intervention. The first pair with the lowest
performance in reading fluency, reading comprehension and acquisition of sight words,
proceeded to intervention phase. Two weeks later, the second pair followed and three
week later the third pair moved to peer tutoring phase.

Procedures

Experimental conditions were accomplished in the following steps:

Pretest

Two types of pretests were used for assessing the dependent variables prior to the
beginning of this study. The purpose of both assessments was threefold: (1) to determine
the students’ grade and age level in reading fluency and comprehension, (2) to determine
the number of high frequency sight words that existed in the students’ repertoire, and (3)
to pair the target students for peer tutoring according to their grade level in reading
fluency, comprehension, and ability to read high frequency sight words.

The first pretest was the Woodcock-Johnson III Tests of Achievement (WJIII
ACH), a set of individually administered norm-referenced tests, which was chosen to
determine students’ abilities in reading fluency and passage comprehension. Therefore
two tests were given: (a) the reading fluency test that measured students’ ability to read
quickly simple sentences, decide if the statements were true and then circle Yes or No.
Students were given three minutes to read and complete as many sentences as they could
out of the 98 total sentences, and (b) the passage comprehension test that measured students’ ability to match a rebus with the actual picture of the object. Next, they were required to point to the picture represented by a phrase. At the end, students had to read a short passage and identify a missing key word that made sense in the context of that passage. The items were increasing in level of difficulty by removing pictorial stimuli and by increasing passage length, level of vocabulary and complexity of syntactic cues.

Furthermore, two additional tests of the WJIII ACH were delivered for assessing students’ basic skills in reading. These were: (a) letter-word identification test that measured students’ word identification skills. Participants were required to identify letters and to pronounce words correctly, (b) the word attack test, which measured students’ structural analysis skills and skills in applying phonics. Students had to pronounce the sounds for single letters, letter combinations that were phonically consistent and nonwords. All students’ scores showed the grade and age level at which the students were able to perform in the four tests described above.

The second pretest was an assessment of the Columbus Reading Guide Curriculum’s high frequency sight words. The purpose of this assessment was to determine the number of high frequency sight words in the students’ repertoire and to identify any unknown words that were going to be included to students’ individualized group of unknown words for instructing them during intervention.

Second-grade and third-grade level lists were obtained by the teachers for second graders and the third grader. The lists included all those high frequency words that were to be taught to the students throughout the school year. The assessment was conducted individually using all the words from the list. Each student had the list of sight words
printed on paper in front of him/her which was covered by a manila folder. A cutout of the folder was created and it was used for moving from one word to another. The cutout helped to isolate the words and increase students’ attention on each word. The sight words that were read correctly by the students were checked off. A correct word was defined as the word read correctly by the student within three seconds. Students’ articulations, dialects or pronunciation were not counted as errors.

**Baseline**

During baseline, the experimenter collected data on students’ acquisition of the five high frequency sight words, which were selected, presented, and instructed by the teacher. Baseline data were collected three times per week. The experimenter pulled each target student out of the classroom and assessed him/her on acquisition of the five teacher’s words for that week. A 3”x 5” flashcard with the word printed in black ink, was displayed to the student. The student had to read the word within three seconds in order to be counted as correct.

At the end of each baseline week, the experimenter conducted a pretest of the five teacher’s words that were going to be taught the following week. The purpose of the pretest was to evaluate the students’ ability in recognizing any of the words that were going to be introduced by the teacher next week.

During the baseline condition, data were also collected on students’ reading fluency and reading comprehension. Data were collected one time per week. The experimenter pulled each student out of the classroom and tested his/her reading fluency rate in a one-minute timing as well as his/her ability to perform the cloze procedure with
the five missing words from the DIBELS passages. All passages were according to students' grade level. Therefore, second graders had to read a standardized second-grade level passage and then they had to identify the five missing words from that passage. The same procedure was applied for the third-grade student.

At the beginning of the reading fluency assessment, the experimenter presented the reading passage to the student and asked the student to read the passage aloud. The student was instructed that whenever he would get stuck in any word, the experimenter would give him/her that word. As soon as the student read the first word of the passage within three seconds, the experimenter started the timer. If the student failed to read the first word within the three-second timing, the experimenter gave the word, marked it with a slash (/) as incorrect in the examiner copy and then started the timer. At the end of one minute timing, the experimenter asked the student to stop and placed a bracket ( ] ) after the last word provided by the student.

Following the fluency measure, the experimenter removed the passage and placed another copy of the reading passage that had five missing words. She asked the student to read the passage one more time and say one word that would fit within context of each blank. When the student reached a sentence that included a blank, he/she read the sentence twice. On the second time, the student had to say one word that would go to that blank within 5 seconds. If the student identified a synonym or a similar word to the exact missing word, the experimenter asked him/her to try another word. If the student identified more than one word, the experimenter asked him/her to say only one word that could be put to the blank. In both cases the student would need to give an answer within five seconds. A response was scored as correct when the student identified (a) the exact
original missing word that had been deleted, (b) a word that was similar to the original word (e.g. “is” instead of “are”) (c) any word of the correct class that made semantic sense within five seconds either from the first or the second count of reading the sentence. A response was considered incorrect if the student identified: (a) a word that did not match in the context of the sentence (i.e. a word that was not the exact or a synonymous word), (b) a word for more than five seconds on the second time of reading the sentence.

Training
Training was conducted prior to the first peer tutoring session. Because of the experimental design (multiple baseline design across subjects) used in this study, not all students participated in the intervention at the same time. The experimenter paired the six target students into three dyads and each dyad was introduced to peer tutoring at a different period of time. The first dyad that had the lowest performance on reading fluency and acquisition of sight words started the peer tutoring. When all three pairs of the target students participated in the intervention, then the total class peer tutoring started a week later. As it was mentioned at the beginning of this chapter, most of the students had participated in peer tutoring intervention in a previous study the previous year (Al-Hassan, 2003). Thus, they were familiar with most of the steps of the procedure and the experimenter determined only one training session needed to be conducted. However, if students did not demonstrate adequate knowledge of the tasks involved during the training session, then additional training sessions were included.
The experimenter pulled the first group of students (i.e. first dyad) out of the classroom and trained them according to the procedures described by Cooke et al. (1983). The training session lasted 30 minutes and it was carried out at a time when no whole class instruction had taken place. The training occurred in the special education class, which was available at that time. The experimenter implemented the following steps:

(a) **Introduction to peer tutoring.** The experimenter prompted students to tell her if they had heard the words “peer tutoring” and what it might mean. Then students answered that “it’s when you teach your partner words.” At that time the experimenter briefly explained to them the importance of peer tutoring. Specifically, she mentioned to them that in peer tutoring children could be good teachers, everyone would be a tutor (i.e. be a teacher) and a tutee (i.e. student) and that each of them would learn how to teach each other words. She then showed the peer tutoring folder and briefly described its function (see Appendices S-V).

(b) **Show the skill.** The experimenter explained to the students the definition of a good tutor by showing examples and non-examples of the skills involved (e.g. prompting, praising, holding flashcards appropriately, etc.). Particularly, she showed them that a good tutor would be the one that would hold the flashcard up at eye level of his partner and ask him/her “What word?” If the partner did not know the word, the tutor would prompt the tutee by saying “Try it.” If the tutee still couldn’t recognize the word, the tutor would provide the answer for him/her by saying “Say (the word)”. In addition she showed them what a good tutor would do if the tutee would not look at the word or would be off-task (e.g. tell him/her “Please look at the word and tell me what it is”, “[Partner’ name] you are not saying the word!”).
(c) *Model the skill.* The experimenter played the role of the tutor and one of the students was the tutee. The other student was observing. She modeled each tutor behavior (i.e. displaying sight word flashcards, providing praise when the partner responded correctly, providing corrective feedback when partner responded incorrectly) 3-4 times.

(d) *Role-play with the group.* The experimenter played the role of tutee and had the dyad of students to be the tutor. One of the students from the group was holding the cards and the experimenter read the words, making both correct and incorrect responses. At this point the group was provided with the opportunity to response chorally.

(e) *Role play with student pairs.* In this step the experimenter gave students the opportunity to practice in pairs. The experimenter provided feedback and used a continuous schedule of reinforcement.

The above training procedures were also introduced to the second and third dyad of students immediately before their initial peer tutoring session.

**Peer Tutoring**

The intervention started with the first pair and it took place out of the classroom at a time suggested by the general education teacher. The peer tutoring was conducted three times per week. Every week on Monday, right before the beginning of the first peer tutoring session, the experimenter pretested students on the five teacher’s sight words for that week. In addition to those words, a set of additional five “unknown” words were added to students’ peer tutoring folders along with the teacher’s words. The purpose of the five additional unknown words was to demonstrate the degree to which students
could practice and acquire additional words by participating in weekly peer tutoring sessions.

The five unknown words were identified from an individualized group of unknown words, which included words that had been counted as incorrect during pretesting (i.e. before the beginning of the study). These words had been obtained from the Columbus Reading Guide Curriculum, that included second- and third-grade level words and they were based on the student’s grade level as well as a grade level higher. For example, second graders were pretested on second- and third-grade level words and the third grader was pretested on third- and fourth-grade level words. The experimenter also added to each student’s individual group of unknown words, a list of the Basic Dolch Sight Words (see Appendix X). Furthermore, the experimenter included, in the individualized group of unknown words, words that students did not maintain during bi-weekly assessment sessions. Therefore, these words were presented again to the students and if they were counted as incorrect, then they were added to the five unknown words for that week.

At the end of each peer tutoring session the experimenter tested each student individually on acquisition of the ten sight words (the five teacher’s words and the other five unknown words). Reading fluency and reading comprehension were assessed only once per week. As mentioned earlier, for the reading fluency and comprehension, the experimenter used the DORF (DIBELS Oral Reading Fluency) standardized passages according to students’ grade level.

While the first dyad was on intervention, the other two dyads were still in the baseline condition. During baseline, the four students continued to be pulled out of the
classroom three times per week to be assessed on the teacher’s five high frequency words. Reading fluency and reading comprehension were assessed only one time per week. The weekly pretests for teacher’s five words for next week were carried out on Fridays, at the end of the week.

At the end of the second week for intervention of the first dyad, the second dyad proceeded to intervention. One training session was conducted at the end of that week, following all the steps mentioned before. The third dyad participated in peer tutoring only one week later, after the second dyad had been on intervention.

Peer tutoring sessions for the six target students were conducted three times per week and lasted 30 minutes each. Sessions were conducted from 9:00-9:30am on Mondays, Tuesdays and Thursdays. Each peer tutoring session was composed of four parts. These were:

(a) *Tutor Huddle.* The huddle was conducted during the first four minutes of every peer tutoring session. Students, after receiving their folders from the experimenter and switching them with their partners, participated in their huddle groups. There were two huddle groups and each group consisted of three students. During huddle groups, students removed the word cards from the “GO” pocket of their folders and took turns reading their cards to the rest of the group. Each student held his/her card up and announced it so the rest of the group could see and hear it. If the word was correct, the group said “YES.” If the word was incorrect, then the group said “Say (the word).” In the case where no one knew a word or there was a disagreement, the students were advised to raise their hand and ask for the experimenter’s help. At the end of the predetermined period, students went to their assigned area as to work with their partner.
(b) Practice. Students met with their partner in their assigned area to practice their ten sight words. There were two six-minute practice sessions. At the first session, one student began in the role of tutor and the other in the role of tutee. It was decided that students with red-coded names on their folders would start first as tutors on that day and students with black-coded names on their folders would go first the next day. Each tutor showed his partner’s cards by holding them up and showing one at a time. Tutees had to identify each word as soon as it was presented. If the tutee read a word incorrectly, then the tutor would prompt his partner by saying “Try again.” If the tutee identified the word correctly, the tutor would move on to the next card. If the tutee hesitated or read the word incorrectly, the tutor would provide the correct response by saying “Say (the word).” Then the tutee repeated the correct response and tutor praised him/her by saying “Good job!” The students moved on to the next word. When the timer beeped at the end of the first six minutes, students switched roles for another six minutes. During practice sessions, the experimenter provided feedback and reinforcement to both students. It was suggested to tutors to vary their praise statements (such as “Super!” “Great!” “Terrific!” “Smart answer!” “Well done!” etc.). As the students were practicing their words for the second and third time, the experimenter prompted them to read each word as fast as they could. At the end of the second six-minute period students prepared for testing.

(c) Testing. The student, who had served initially as the tutor, tested his partner first. He/she turned the folder with the testing page in front of him/her (see Appendix S) and presented each word card once. If the tutee correctly and promptly (within three seconds) identified the word, the tutor placed it on the “😊.” If the tutee hesitated or made a mistake, the tutor placed it on the “X” pile. Praise was given only at the end of
the testing. Once both students tested each other, they were taught to say to their partner: “(student’s name), you did a good job! You got (number of words) words right!” Afterwards, each student marked his partner’s cards. He/she she marked a circle on the back of those cards that had been placed on the “😊” and an “X” on the back of the cards that had been put on the “X” pile. When students finished their marking, they placed the cards in the “GO” pocket. At the end of the third peer tutoring session, students put the cards in the “STOP” pocket (see Appendix U). Then they switched folders for the next step, namely charting.

(d) Charting. Each student colored his/her chart, which was placed on the left side of their folder (see Appendix T). According to the number of correct words they had scored during testing, the students colored the same number of squares on the chart.

During peer tutoring sessions, a reward system was employed. It included a star card that was put in each student’s folder (see Appendix V). Each student was holding the star card throughout the peer tutoring session. The experimenter circulated during the Tutor Huddle time, the practice and testing phases and stamped those students’ star card, that were demonstrating appropriate tutor/tutee’s behavior. When the experimenter rewarded students with a stamp on the star card, a praise statement was delivered at the same time (e.g. “I liked the way you were holding the cards and helping your partner!” “Good job for praising your partner!” “Way to go (student’s name)” etc). There were 20 squares in each star card. A full star card was exchanged at the end for a tangible reward item.

At the end of the first week of intervention at which time all the students participated, a “Good News Report” was sent home to inform parents about their
children’s positive results on peer tutoring (see Appendix Q). According to Cooke et al. (1983), “parents can be an important resource in setting up a peer tutoring procedure and in supporting progress made by their child” (p. 77). Therefore, sending the “Good News Report” was a way to communicate with parents and include them in this procedure by letting them know their children’s progress. The report was a continuum of the first letter (see Appendix A) that had been sent to parents, informing and explaining them about the peer tutoring procedure.

Assessment of Reading Fluency and Comprehension

As soon as the third dyad participated in the intervention (week 7), it was decided that the assessment of students’ reading fluency would need to be increased from one time to two times per week. The reason for increasing the number of times of reading fluency assessment was to collect additional data on students’ reading fluency rate. The data until that time were not enough as to be able to draw any conclusions about the effect of the intervention over the dependent variable. So from week 7 until the end of the study (week 23) reading fluency was assessed twice and reading comprehension once. The sight words acquisition continued to be assessed three times per week.

There were twenty progress monitoring passages for DORF for each grade level. Therefore, the experimenter had to repeat administration of the DIBELS passages once all twenty passages were administered. However, on the second time of administration, students were required to start reading from a different paragraph of the passage that had not been read the first time. Before students would read the passage, they were asked to read the title in order to be stimulated and be concentrated on the content of the passage.
that was following. If the student was having difficulties reading any of the words from the title, the word was given to him. The title was not counted or timed as part of the assessment.

As stated earlier, reading comprehension was measured by using the cloze procedure. Five words were randomly deleted from the part of the passage, students were reading. Then, students were required to identify the missing words.

Apart from the DORF passages that were used for assessing students' reading fluency rate, DIBELS™ benchmark assessments were also administered for recording students' performance reading level based on the DIBELS benchmark goals. Typically, the benchmark assessments are administered three times during the academic year, in the beginning (Autumn), middle (Winter), and end (Spring). Two of the three benchmark assessments were administered. One was given in the middle of the school year and the other assessment at the end of the school year. Each benchmark assessment included three passages. Students' score was calculated based on the middle score achieved in the three passages.

The DIBELS benchmark goals in the middle of the second grade are shown in Table 2.2 below:

<table>
<thead>
<tr>
<th>Performance</th>
<th>Student Reading Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DORF &lt; 52</td>
<td>At risk</td>
</tr>
<tr>
<td>52 &lt;= DORF &lt; 68</td>
<td>Some risk</td>
</tr>
<tr>
<td>DORF &gt;= 68</td>
<td>Low risk-Benchmark Goal 1</td>
</tr>
</tbody>
</table>

Table 2.2. DIBELS™ benchmark goals in the middle of the second grade
The DIBELS benchmark goals in the middle of the third grade are shown in table 2.3 below:

<table>
<thead>
<tr>
<th>Performance</th>
<th>Student Reading status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DORF &lt; 67</td>
<td>At risk</td>
</tr>
<tr>
<td>67 ≤ DORF &lt; 92</td>
<td>Some risk</td>
</tr>
<tr>
<td>DORF ≥ 92</td>
<td>Low risk-Benchmark Goal</td>
</tr>
</tbody>
</table>

Table 2.3. DIBELS™ benchmark goals in the middle of the third grade

During intervention, students’ reading fluency and comprehension were also measured by the constructed paragraphs. Each constructed paragraph was administered at the end of tutoring sessions. The same procedures used in DIBELS passages were applied in the constructed paragraphs as to assess students’ reading fluency. In addition, reading comprehension was still measured by randomly deleting five words.

**Total Class Peer Tutoring Training**

At the end of the first week of intervention with the six participants, a total class peer tutoring training took place. A meeting between the experimenter and the general education teacher was arranged prior to the total class peer tutoring training in order to train the teacher in peer tutoring. It must be noted that the general education teacher had already been implementing the same intervention during math class. The purpose of the meeting was to explain and demonstrate the exact procedure that was being implemented for the sight words peer tutoring. Therefore, the teacher received a lesson plan along with
a detailed explanation of the procedures involved (see Appendix P), particularly the training’s objectives, materials needed, and the methodology of the peer tutoring. The experimenter explained and modeled parts of the peer tutoring procedure to the general education teacher. During the meeting, the Tutor Huddle groups were defined and the Tutor Huddle assigned areas were specified. Five alphabet letter signs (A, B, C, D, and E) were placed in different parts of the classroom that indicated the Tutor Huddle assigned areas. Each student had one of the five alphabet letters written at the back of the folder, indicating the Tutor Huddle assigned area (see Appendix V). During the meeting, the nature of rewards was discussed. The experimenter and the general education teacher decided that students would continue receiving tangible items when their star cards were completed as well as when the students reached at the end of their chart (i.e. reached the number 100). In addition to the chart and the starcards, a “CAUGHT BEING GOOD” token was also given when the students reached half way on their chart (i.e. reached the number 50) (see Appendix Y).

By using this reward system during total class peer tutoring, the experimenter thinned the schedule of reinforcement as she was assessing the students individually at the end of each peer tutoring session. Thus she was giving tangible items to students on a thinner schedule but praise statements for students’ efforts were being delivered continuously.

The Total Class Peer Tutoring training was conducted a day before the beginning of the Total Class Peer Tutoring. The training took place at 10:00-10:45 am on Friday in the general education classroom. All 14 students from the special and general education classrooms participated in the training. During class training, all the steps that had been
applied during the target students’ training were followed. The general education teacher very briefly introduced to the students what peer tutoring is, and what it means to be tutor and tutee. Then the experimenter showed the parts of the peer tutoring folder. The general education teacher and the experimenter together modeled the tutor’s skills (prompting, praising, giving feedback to partner) in front of the class. The class was divided into two groups, where the experimenter role played the skills with the one group and the general education teacher did the same with the second group. Both of the adults served as the tutors and the students were the tutees. The next step was to have a role-play with pairs. One of the pairs of this study was selected to demonstrate the peer tutoring procedure in front of the class. At the end of the role-playing the general education teacher paired the rest of the students and informed them about the Tutor Huddle areas. Then all the students practiced the peer tutoring procedure with their partners.

**Total Class Peer Tutoring**

The intervention with the whole class followed exactly all the steps used by the experimenter mentioned previously (Tutor Huddle, Practice, Testing, Charting). During the intervention three adults were helping all the students: the general education teacher, the special education teacher, and the experimenter. The Total Class Peer Tutoring was conducted three times per week: on Mondays, Tuesdays from 10:00 -10:30 am and on Wednesdays from 1:30 to 2:00 pm. All sessions took place in the general education classroom.

Before the beginning of each week’s first session, the general education teacher introduced the five teacher’s sight words. She pronounced the word and the students
spelled and read the words with her. Through the whole Total Class Peer Tutoring, the general education teacher used a teaching strategy at every step of a peer tutoring session. For example, at the end of the Tutor Huddle phase the timer went off and the general education teacher clapped her hands with a specific rhythm and then the students had to repeat the same clapping. The purpose of using such a strategy was to ensure that all students were following all the steps of the peer tutoring and they were aware of what they needed to do. Students were fond of this teaching strategy and they were able to follow teacher’s instructions for the next step of peer tutoring session immediately.

**Maintenance Assessment**

Three weeks after Total Class Peer Tutoring began, on week 10, it was decided that an additional dependent variable needed to be assessed: the number of sight words maintained across time. Students’ performance on reading fluency was not showing any changes, after six weeks of intervention for the first pair, four weeks for the second pair and three weeks of peer tutoring intervention for the third pair. Therefore, it might be that their fluency was hampered by their inability to maintain the words. The maintenance assessment was designed to assess if the students were maintaining the words taught. Maintenance was assessed every two weeks and students were evaluated on 20 sight words that had been practiced during intervention 2 to 3 weeks before the maintenance week. During the maintenance assessment a sight word was defined as maintained if the student read the word correctly within three seconds after the presentation of the word printed in blank ink on an index card.
Weekly pretests for six unknown words

On weeks 18 and 19, teacher introduced only four words. The experimenter pretested students for identifying six unknown words in order to keep the number of words constant at ten.

Weekly pretests for ten unknown words

From week 20 until the end of the study (week 23), the general education teacher did not introduce any additional five teacher’s sight words. So the experimenter pretested students for identifying ten unknown words.

Posttest

Three assessments were conducted at the end of intervention, two of which had already been used at the beginning of the study during pretesting. All three post assessments were administered individually to the six target students at the last week of the study (week 24). These were:

(a) The Woodcock-Johnson III Tests of Achievement (WJIII ACH) with which students’ letter-word identification, word attack, reading fluency and passage comprehension were measured. The experimenter administered the WJIII ACH in order to compare students’ initial performance prior to the beginning of this study and their performance after intervention took place.

(b) Teacher’s high frequency sight words assessment. The purpose of this assessment was to determine the number of high frequency sight words in the students’ repertoire at the end of the intervention. The experimenter used the same procedures
mentioned at the pretesting section of the study. Second grade students had a second grade level list of teacher’s sight words. The list was covered with manila folder and had a cutout to move from one word to another. The cutout helped students to concentrate on one word at a time. The experimenter recorded all students’ correct responses on a separate sheet. A correct response was defined as having the student read a word correctly within a three-second timing.

(c) DIBELS™ second benchmark assessment. At the end of the peer tutoring, students’ reading fluency level was compared to the standardized DIBELS benchmark goals on oral reading fluency. The benchmark goals represented the student’s reading level at the end of second and third grade.

The second DIBELS benchmark assessment on oral reading fluency was conducted a week later of the peer tutoring. Three benchmark passages were administered each to second graders and the third grader. Students had one minute for reading each passage. The students’ performance level was calculated based on the middle score of the three passages. The experimenter followed the same procedures, which had been used during baseline and peer tutoring for assessing students’ correct responses on reading passages.

Table 2.4 presents the descriptive levels of reading performance in the end of second grade, according to DIBELS™ benchmark goals. Second grade students, achieving a score 90 or more on the three benchmark passages, are considered to be at low risk. In other words, second graders with the score of 90 or more establish the DIBELS benchmark goal in the end of second grade.
<table>
<thead>
<tr>
<th>Performance</th>
<th>Student Reading Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DORF &lt; 70</td>
<td>At risk</td>
</tr>
<tr>
<td>70&lt;=DORF&lt;90</td>
<td>Some risk</td>
</tr>
<tr>
<td>DORF&gt;=90</td>
<td>Low risk-Benchmark Goal</td>
</tr>
</tbody>
</table>

Table 2.4. DIBELS™ benchmark goals in the end of the second grade

Table 2.5 shows the descriptive levels of performance at the end of third grade. Third graders, achieving a middle score of 110 or more on the three benchmark passages, establish DIBELS benchmark goal at the end of third grade.

<table>
<thead>
<tr>
<th>Performance</th>
<th>Student Reading Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DORF &lt; 80</td>
<td>At risk</td>
</tr>
<tr>
<td>80&lt;=DORF&lt;110</td>
<td>Some risk</td>
</tr>
<tr>
<td>DORF&gt;=110</td>
<td>Low risk-Benchmark Goal</td>
</tr>
</tbody>
</table>

Table 2.5. DIBELS™ benchmark goals in the end of the third grade

The DIBELS benchmark assessment provides instructional recommendations based on the performance level of each student. Therefore students who are considered at risk need to follow intensive and substantial interventions. Students who are at some risk, need to have strategic instructional interventions.
Measurement of Social Validity

The evaluation of "consumers' satisfaction" is a vital part of a behavioral intervention. According to Schwartz & Baer (1991), social validity assessment should be a standard part of an applied research methodology and intervention. This study measured the social validity of its participants (students, parents and teachers) through a questionnaire.

Three types of questionnaires were delivered to students, teachers and parents of the target students (see Appendices J-L). Parents' and teachers' questionnaires included statements on a 1-4 rating scale, in which they were requested to agree strongly, agree, disagree and disagree strongly with each statement. For students' questionnaires open-ended questions and statements on 1-3 rating scale were included. The 1-3 rating scale was composed of three faces: 😊 😐 😞

A second observer interviewed the students and wrote down the students' responses based on the questionnaire. All the interviews were conducted a week after the intervention.
CHAPTER 3

RESULTS

This chapter presents the results of the effects of total class peer tutoring on the acquisition of sight words, maintenance, reading fluency and comprehension for six students at-risk for reading failure. Specifically, the results are divided into the following sections: (a) interobserver agreement of the four measures, (b) procedural integrity, (c) individual mean scores on the four dependent variables and visual analysis of data, (d) group scores for the four dependent measures, and (e) social validity.

Interobserver agreement

Agreement on the dependent measures were collected throughout the study: sight words and weekly pretests, reading fluency and reading comprehension based on the DIBELS passages and on the constructed paragraphs and maintenance of sight words. Interobserver agreement assessment was conducted for at least 30% of the assessment sessions and scores were calculated by dividing the number of agreements with the number of agreements plus disagreements and then multiplying by 100. During baseline and intervention, a second observer sat near the target student and the experimenter and recorded responses on a separate data sheet. Table 3.1 shows the interobserver agreement for all the dependent measures.
Interobserver agreement measures for the weekly pretests of sight words were taken for 35% of the assessment sessions (8 out of 23 sessions). The mean agreement was 98.5% with a range of 95% to 100%. Interobserver agreement measures for sight words learned were taken for 36% of the sessions (25 out of 69). The mean agreement was 99.1% with a range of 92% to 100%.

Reading fluency was assessed using the DIBELS passages and the experimenter-constructed paragraphs. Forty-six percent of the sessions (18 out of 39) were assessed for agreement. The mean agreement was 96.2% with a range of 91% to 100%. The assessments for the constructed paragraphs were taken for 40% of the sessions (4 out of 10 sessions). The mean agreement was 96.7% with a range of 95% to 97.5%.

Likewise, reading comprehension was evaluated using the DIBELS passages and the constructed paragraphs. Interobserver agreement measures for the DIBELS passages were conducted for 47% of the assessment sessions (11 out of 23 sessions). The mean agreement was 99.6% with a range of 96% to 100%. IOA for the constructed paragraphs were taken for 40% of the assessment sessions (4 out of 10 sessions). The mean agreement was 99% with a range of 96% to 100%.

Finally, interobserver agreement measures for the maintenance of sight words were taken for 44% of the assessment sessions (4 out of 9 sessions). The mean agreement was 98.7% with a range of 98% to 99%.

Procedural Integrity

Integrity data were collected to ensure that the independent variable was implemented as intended in the definition. The students’ behavior was assessed for
applying all the 16 steps of the peer tutoring procedure (see Appendix M) and experimenter’s behavior was assessed for administering all the 14 steps of the DIBELS integrity procedure (see Appendix N) on reading fluency and reading comprehension. Modifications were made on the procedural integrity assessment of the reading comprehension to accommodate the steps involved in administering the cloze procedure. Students’ and experimenter’s behaviors were measured by dividing the number of steps completed correctly by the total number of the steps and then multiplying by 100.

Table 3.2 shows the procedural integrity data for the tutors’ behavior that were collected for 53% of the peer tutoring procedure (32 out of 60 sessions). Results indicate that the overall mean of students’ treatment integrity was 96.7%. Specifically, Erin presented the lowest percentage of procedural integrity. She performed an average of 92.7% of the steps as a tutor over 6 sessions, with a range of 81.2% to 100%. A possible explanation for her low integrity score is the number of absences from peer tutoring. She attended tutoring on only 44 out of 60 sessions (73%). This might have impacted her fluency and flexibility in following the procedure. She typically needed to be prompted by the experimenter on holding the flashcard with the front facing her partner, giving praise after correct responses, and giving corrective feedback after incorrect responses.

Steve performed all the steps of the peer tutoring on an average of 95.8% of the time during 6 sessions, with a range from 87.5% to 100%. In 2 out of the 6 integrity assessments, he did not provide corrective feedback to his partner when needed. In addition, in 1 of the 6 integrity assessments, Steve had to be prompted by the experimenter to provide praise to his partner for a correct response.
Irena followed all the steps of the peer tutoring procedure on an average of 93.7% during 7 sessions, with a range from 81.2% to 100%. In 3 out of 7 integrity assessments, Irena failed to praise her partner in all the parts of the procedure (e.g. when partner responded correctly or incorrectly and when partner completed testing). She also failed to present the flashcards correctly (i.e. flashcard with the front facing partner) in one of the assessments. Despite her low accuracy in the procedural integrity assessment, Irena displayed the tutoring skills and knew what to do during the procedure. Her low scores can be attributed to her reluctance in participating in peer tutoring during the days when integrity data were collected.

Dan performed all the steps of the tutor behavior with 97.9% mean accuracy during 6 sessions, with a range from 87.5% to 100%. On one of the sessions, Dan performed only 14 out of 16 steps correctly. He prompted his partner during testing time and at the end of the testing time he failed to praise his partner. Finally, Dignity and Susan performed all the steps of the procedure with 100% accuracy during 4 and 3 sessions respectively.

DIBELS integrity assessment for the experimenter’s behavior was conducted during 8 sessions. Observations indicated that the experimenter followed 99% of the 14 steps of the procedure with a range of 93% to 100%. In 1 of the 8 procedural integrity assessments, the observer recorded that the experimenter needed practice in providing directions for reading fluency to the students.
**Individual Student Results on the Four Dependent Variables**

As noted previously, the students were given a set of 5 teacher’s sight words to learn every week during baseline. During intervention, the experimenter added 5 additional unknown words for a total of 10 words the students were to learn each week. In sessions 52 to 57 (i.e. weeks 18 and 19) the students received 4 teacher words and 6 experimenter unknown words each week. During sessions 58-69 (i.e. weeks 20-23), the students received 10 experimenter unknown words each week because the teacher did not introduce any sight words (see figure 4.1).

**Student 1: “Erin”**

Erin participated in the program for a total of 51 of the 69 tutoring sessions (74%). Most of her absences were during intervention where she missed 16 tutoring sessions as opposed to 2 sessions missed during baseline. She was paired with Steve throughout the study.

*Acquisition of Sight words.* Erin acquired 166 new sights words during the course of the intervention; 78 were from the general education teacher’s list and 88 were from other sources provided by the experimenter (see Appendix X). Figure 3.1 and Table 3.3 show the number of weekly sight words recognized by Erin across conditions, and the mean number and percentage of words the student recognized across baseline and peer tutoring sessions. The weekly pretests under the baseline condition indicated that the student identified an average of 2 out of 5 words. After the teacher’s instruction had taken place, her mean number of words was 2.14 within a range of 1 to 4 words over seven baseline sessions. During intervention, the pretests showed that the student knew an
average of 1 word out of 10. Mean number of words recognized during intervention was 8.86 with a range of 6 to 10 words. Her mean percentage of correct words was 42.8% during baseline and 88.6% during intervention. Thus, a mean increase of 45.8 percentage points over baseline was evident.

*Reading Fluency.* Reading fluency was assessed once per week, sessions 1 through 21 and twice a week during sessions 22 to 69. As mentioned in Chapter 2, students’ fluency rate was measured by using a standardized set of passages from Dynamic Indicators of Basic Early Literacy Skills™ (DIBELS 6th Ed.) and later on experimenter-constructed passages were included as part of the assessment.

Figure 3.2 and Table 3.4 present Erin’s reading fluency rate across baseline and peer tutoring sessions. During baseline, Erin was reading at an average of 14.7 words per minute with a range of 12 to 17 words on the DIBELS passages. During peer tutoring, her rate increased to an average of 16.5 words on the DIBELS passages with a range of 6 to 31 words and to a mean of 28 words on the constructed paragraphs with a range of 19 to 43 words per minute. A difference of 11.5 wpm was evident between the two assessments during intervention. In addition, an average increase of 1.8wpm over baseline was seen on the DIBELS passages.

*Reading comprehension.* Comprehension was measured once a week throughout the study using the DIBELS passages and the constructed paragraphs. Five comprehension questions were asked based on the cloze procedure.

Table 3.3 and Figure 3.5 indicate the number of comprehension questions answered correctly during baseline and peer tutoring sessions. During baseline, Erin answered an average of 2.3 questions correctly with a range of 2 to 3 correct responses on
the DIBELS passages. However, during peer tutoring her average number of correct responses increased on both assessments. On DIBELS passages, correct responses averaged 3.9 with a range of 2 to 5 while on constructed paragraphs her mean was 4.4 with a range of 3 to 5 questions. A difference of 0.5 correct responses was found between the two assessments during peer tutoring, with a mean increase over baseline of 1.6 responses on the DIBELS passages.

Maintenance. Maintenance was assessed every two weeks for words practiced only during peer tutoring. Each maintenance assessment contained 20 words that were from two consecutive weekly sets of peer tutoring sessions.

Figure 3.4 shows the number of words Erin retained across assessment sessions conducted every two weeks. All the sessions, except session 7, contained 20 words. The mean number of words retained across 10 sessions was 14.4 with a range of 10 to 19. In other words, her average percentage of retention over a two-week period was 72%.

Pretest and Posttest results. Table 3.6 lists the student’s performance prior and after the intervention based on the four subtests of the Woodcock Johnson Test of Achievement. On the Letter-Word Identification subtest, Erin had a grade equivalent score of 1.6 at pretest and 1.8 at posttest. Thus, an increase of 2 months was evident in the area of letter-word identification. On the Reading Fluency subtest, Erin’s reading skills were equivalent to K.9 (9 months of Kindergarten level) during pretest and K.7 at posttest. A decrease of 2 months on the reading fluency subtest occurred. On the Passage Comprehension subtest, Erin’s comprehension skills were at 8 months of kindergarten level (K.8) during pretest but 1.4 at posttest. An increase of 6 months was shown. Finally, on the Word Attack subtest Erin was able to pronounce single letters and letter
combinations equivalent to first-grade level at pretest but to 1.6-grade level at posttest. Her word attack skills were improved by six months.

DIBELS benchmark assessments on oral reading fluency were conducted in the middle (winter) and at the end of the study (spring). Table 3.7 shows that Erin acquired a score of 16 during the middle of the year. The middle of the year DORF's benchmark goals indicated that her reading status was at-risk. At the end of the year, Erin scored 19 on the second benchmark assessment. This score showed by the end of the year benchmark goals that her reading status was still at-risk, suggesting that substantial intervention was still needed for her.

A maintenance assessment was conducted at the end of the year, evaluating the students' percentage of retention on sight words acquired during intervention. Table 3.8 shows that Erin recognized correctly 110 out of 166 words presented to her. Thus, her percentage of retention was 66.2%. Her low retention percentage is consistent with her low performance on the above post assessments.

Table 3.9 illustrates the pre and posttest results on the second- and third-grade word lists. Erin identified an average of 20% (12/60) of the second-grade words correctly during pretest and 56.6% (34/60) during posttest. An average increase of 36.6 points was observed on the second-grade word list. Data obtained for the third-grade words during posttest showed an accuracy of 52% (25/48). No pretest data were obtained for third-grade words because of Erin's low performance on the second-grade word list.
Student 2: “Steve”

Steve participated in the study for 67 of the 69 tutoring sessions (97%). His two absences were during baseline. He was paired with Erin. When his partner was not present, Steve was paired either with another student during the total class peer tutoring or with the experimenter or the special education teacher.

*Acquisition of Sight Words.* Steve acquired a total of 179 new sight words during intervention; 78 were from the teacher’s list and 101 were from other sources. Figure 3.1 and Table 3.3 show the number of weekly sight words recognized by Steve across conditions, and the average number and percentage of words the student recognized across baseline and peer tutoring sessions. The weekly pretests, under baseline condition, had a mean of 1 sight word. Table 3.3 shows that his mean number of words acquired during the seven baseline sessions was 3.57 with a range of 2 to 5 words. The weekly pretests, under intervention condition, had an average of 2.05 out of 10 words. The mean number of words recognized during peer tutoring was 9.10 with a range of 4 to 10 words. His mean percentage of correct words was 71.4% during baseline and 91% during intervention, thus, a mean increase of 19.6 percentage points over baseline.

*Reading Fluency.* Figure 3.2 and Table 3.6 present Steve’s reading fluency rate across baseline and peer tutoring sessions. During baseline, he was reading an average of 20.5 words per minute with a range of 17 to 24 words on the DIBELS passages. During intervention, Steve’s reading fluency rate increased to a mean of 23 words with a range of 8 to 38 words on the DIBELS passages and a mean rate of 36.4 words with a range of 27 to 44 words on constructed paragraphs. A difference of 13.4 wpm was noted between the
two assessments during intervention. A mean increase over baseline on the DIBELS passages was 15.9 words per minute.

Reading Comprehension. Table 3.7 and Figure 3.3 indicate Steve’s number of comprehension questions answered correctly during baseline and peer tutoring sessions. Mean number of comprehension questions answered correctly during baseline was 3 with a range of 2 to 4 questions on the DIBELS passages. The mean number of correct comprehension questions during peer tutoring increased on both the DIBELS passages and the constructed paragraphs. The average number of questions answered correctly on the DIBELS passages was 3.8 with a range of 2 to 5 and the mean number of questions on the constructed paragraphs was 4.6 with a range of 4 to 5. A difference of 0.8 questions was evident between the two assessments during intervention. In addition, a mean increase over baseline of 0.8 responses was noted on the DIBELS passages.

Maintenance. Figure 3.4 shows the number of words Steve retained across assessment sessions conducted every two weeks. Mean number of words retained across 10 sessions was 18 with a range of 15 to 20. In other words, his mean percentage of retention was 90%.

Pretest and Posttest results. According to Table 3.8, Steve’s performance on the Letter-Word Identification subtest during pretest was equivalent to the 1.6-grade level. During posttest, his performance on the subtest increased to the grade equivalent of 2.2. Thus, a 6-month increase was evident on this subtest. On the Reading Fluency subtest, the student earned a grade equivalent of 1.6 during pretest. A one-month decrease was shown at the posttest, where the student had a grade equivalent of 1.5. On the Passage Comprehension subtest, Steve’s performance was equivalent to the 1.2-grade level during
pretest. His performance increased to the 1.8 grade equivalent during posttest. Thus, a 6-month gain occurred. Finally, on the Word Attack subtest the student was able to perform at the first-grade level during pretest. However, his word attack skills improved by seven months during posttest, where Steve earned a grade equivalent of 1.7.

Table 3.7 shows that Steve earned a score of 14 in the middle of the year DORF's benchmark assessment. Middle year’s benchmark goals indicated that his reading status based on the score earned was at-risk. At the end of the year, Steve got 27 on the second benchmark assessment. This score showed that the student was considered still at-risk by the end of the year DORF’s benchmark goals and that substantial intervention was required for him.

Table 3.8 shows the overall maintenance assessment conducted at the end of the study. Steve recognized correctly 164 out of 179 words when presented to him. So, his retention percentage was 91.6%.

Table 3.9 illustrates the pre and posttest results on the second- and third-grade word lists. Steve identified correctly an average of 60% (36/60) of the second-grade words during pretest and 88.3% (53/60) during posttest. An average increase of 28.3 percentage points was demonstrated. Data obtained for the third-grade words during posttest showed an average accuracy of 79% (38/48). No pretest data were obtained for third-grade words because of Steve’s low performance on the second-grade word list.
Student 3: “Irena”

Irena participated in the study for a total of 67 out of 69 tutoring sessions (97%). Her two absences were during intervention. Initially, Irena was paired with Dignity during peer tutoring but later on she had Dan as her partner.

Acquisition of Sight Words. Irena acquired a total of 159 new sight words during intervention; 68 were from the teacher’s list and 91 were from other sources. Figure 3.1 shows the number of weekly sight words recognized by Irena across sessions. Her weekly pretests, under baseline condition, showed a mean of 4.4 out of 5 words. Table 3.3 indicates that her mean number of words acquired during the 15 baseline sessions was 4.87 with a range of 4 to 5 words. The weekly pretests under intervention had an average number of 2.89 out of 10 words. Mean number of words recognized during peer tutoring was 9.65 with a range of 6 to 10 words. Her mean percentage of correct words was 97.4% during baseline and 96.5% during intervention. Thus, a small mean decrease of 0.9 percentage points over baseline was evident.

Reading Fluency. Figure 3.2 and Table 3.4 present Irena’s reading fluency across baseline and peer tutoring sessions. During baseline, she had a mean of 24.6 words per minute with a range of 16 to 34 words on the DIBELS passages. During intervention, Irena’s reading fluency was increased to a mean rate of 35.4 words with a range of 14 to 56 words on the DIBELS passages and a mean rate of 54.1 words with a range of 49 to 63 words on the constructed paragraphs. A difference of 18.7 wpm was noted between the two assessment measures. In addition, a mean increase over baseline was seen for the DIBELS passages with 10.8 words per minute.
Reading Comprehension. Table 3.5 and Figure 3.3 show Irena’s number of comprehension questions answered correctly during baseline and peer tutoring sessions. Mean number of comprehension questions answered correctly during baseline was 2.8 with a range of 2 to 4 questions on the DIBELS passages. During peer tutoring, the mean number of questions answered correctly increased both on the DIBELS passages and constructed paragraphs. The average of correct answers was 4.2 with a range of 2 to 5 on the DIBELS passages and 4.4 with a range of 3 to 5 on the constructed paragraphs. A difference of 0.2 correct responses was seen between the two assessments. Furthermore, a mean increase over baseline of 1.4 responses was noted on the DIBELS passages.

Maintenance. Figure 3.4 shows the number of words Irena retained across assessment sessions. Her mean number of words retained across the 10 sessions was 18.1 with a range of 16 to 20, for a mean percentage of retention of 90.6%.

Pretest and Posttest results. According to Table 3.6, Irena’s performance on the Letter-Word Identification subtest during pretest was equivalent to the 1.9 grade. During the posttest, her performance on the subtest increased to the 3.0 grade equivalent. Thus, one-grade level increase was evident on this subtest. On the Reading Fluency subtest, the student earned a 1.3 grade equivalent during pretest. An increase of 7 months was seen at the posttest, where the student had a grade equivalent of 2.0. On the Passage Comprehension subtest, Irena’s performance was equivalent to the 1.6-grade level during the pretest. Her performance increased to the grade equivalent of 2.0 during the posttest, for a 4-month gain. Finally, on the Word Attack subtest she obtained a score 1.9 during the pretest but improved to 2.4 on the posttest for a 5-month gain.
Table 3.7 shows that Irena earned a score of 22 at the middle of the year DORF’s benchmark assessment. Middle year’s benchmark goals indicated that her reading status based on the score earned was at-risk. At the end of the year, Irena got 38 on the second benchmark assessment. This score showed that the student was considered still at-risk at the end of the year DORF’s benchmark goals and that substantial intervention was required for her.

Table 3.8 shows the overall maintenance assessment conducted at the end of the study. Irena recognized correctly 144 out of 159 words, for 90.5% retention.

Table 3.9 shows that Irena identified correctly an average of 78.3% (47/60) of the second-grade words during pretest and 98.3% (59/60) during posttest. An average increase of 20 percentage points was observed. Irena identified correctly an average of 31.2% (15/48) of the third-grade words during pretest and 91.6% (44/48) during posttest. Hence, an average increase of 60.4 percentage points over pretest was noted.

Student 4: “Dignity”

Dignity participated in the study for a total of 68 out of 69 tutoring sessions (98.5%). Her only absence was during intervention. Initially, Dignity was paired with Irena during peer tutoring but later on she had Susan as her partner.

Acquisition of Sight Words. Dignity recognized a total of 166 new sight words during intervention; 68 were from the teacher’s list and 98 were from other sources. Figure 3.1 shows the number of weekly sight words recognized by the student across sessions. Her weekly pretests under baseline showed a mean of 3 out of 5 words. Table 3.3 indicates that her mean number of words acquired during the 15 baseline sessions was
4.53 with a range of 2 to 5 words. The weekly pretests under intervention had an average number of 2.67 out of 10 words. The mean number of words recognized during the peer tutoring was 9.28 with a range of 6 to 10 words. Her mean percentage of correct words was 90.6% during baseline and 92.8% during intervention. Thus, a mean increase of 2.2 percentage points over baseline was evident.

*Reading Fluency.* Figure 3.2 and Table 3.4 present Dignity’s reading fluency across baseline and peer tutoring sessions. During baseline, she had a mean of 21.8 words per minute with a range of 9 to 30 words on the DIBELS passages. During intervention, Dignity’s reading fluency rate increased to a mean of 23.3 words with a range of 7 to 37 words on the DIBELS passages and a mean rate of 31.5 words with a range of 26 to 45 words on the constructed paragraphs. A difference of 8.2 wpm was evident between the two assessments during peer tutoring. In addition, a mean increase over baseline was seen for the DIBELS passages with 1.5 words per minute.

*Reading Comprehension.* Table 3.5 and Figure 3.3 show comprehension questions Dignity answered correctly during baseline and peer tutoring sessions. The mean number of comprehension questions answered correctly on the DIBELS passages during baseline was 2.8 with a range of 1 to 4. During peer tutoring, the mean number of correct comprehension questions increased on both the DIBELS passages and the constructed paragraphs. The average of correct answers was 4.1 with a range of 2 to 5 on the DIBELS passages and 4.5 with a range of 3 to 5 on the constructed paragraphs. A difference of 0.4 correct responses was noted between the two assessments during intervention. Furthermore, a mean increase over baseline of 1.3 responses was evident on the DIBELS passages.
Maintenance. Figure 3.4 shows the number of words Dignity retained across assessment sessions conducted every two weeks. Her mean number of words retained across the 10 sessions was 18.3 with a range of 16 to 20. In other words, her mean percentage of retention was 91.7%.

Pretest and Posttest results. According to Table 3.6, Dignity’s performance on the Letter-Word Identification subtest during pretest was equivalent to the 1.9 grade. During the posttest, her performance on the subtest increased to the grade equivalent of 2.4. Thus, a 5-month gain was evident on this subtest. On the Reading Fluency subtest, Dignity scored at 1.8-grade level during the pretest. However, a decrease of 2 months was shown on the posttest, where the student scored a grade equivalent of 1.6. On the Passage Comprehension subtest, Dignity’s performance was equivalent to the 1.4-grade level during the pretest. Her performance increased by 3 months on the posttest, reaching the grade equivalent of 1.7. Finally, on the Word Attack subtest the student was able to perform at the first-grade level during pretest. However, her word attack skills improved by 13 months during the posttest, where the student earned a grade equivalent of 2.3.

Table 3.7 shows that Dignity earned a score of 18 at the middle of the year DORF’s benchmark assessment. Middle year’s benchmark goals indicated that her reading status, based on the score earned, was at-risk. At the end of the year, Dignity got 29 on the second benchmark assessment. Despite the relative increase, the score showed that the student was considered still at-risk by the end of the year DORF’s benchmark goals and that substantial intervention was required for her.
Table 3.8 shows the overall maintenance assessment conducted at the end of the study. Dignity recognized correctly 156 out of 166 words when presented to her. So, her percentage of retention was 93.9%.

Table 3.9 illustrates the pre and posttest results on the second- and third-grade word lists. Dignity identified correctly an average of 50% (30/60) of the second-grade words during the pretest and 96.6% (58/60) during the posttest. An average increase of 46.6 percentage points was demonstrated. Data obtained for the third-grade words during the posttest showed an average accuracy of 91.6% (44/48). No pretest data were obtained for third-grade words because of Dignity’s average performance on the second-grade word list.

*Student 5: “Dan”*

Dan participated in the study for a total of 68 out of 69 tutoring sessions (98.5%). His only absence was during intervention. At the beginning of the intervention, Dan was paired with Susan but later on he was paired with Irena.

*Acquisition of Sight Words.* Dan recognized a total of 156 new sight words during intervention; 63 were from the teacher’s list and 93 were from other sources. Figure 3.1 shows the number of weekly sight words recognized by Dan across sessions. His weekly pretests under baseline showed a mean of 4.5 out of 5 words. Table 3.3 indicates that his mean number of words acquired during the 18 baseline sessions was 4.67 with a range of 3 to 5 words. The weekly pretests under intervention averaged 2.71 out of 10 words. The mean number of words recognized during the peer tutoring was 9.36 with a range of 6 to 10 words. His mean percentage of correct words was 93.4%
during baseline and 93.6% during intervention, with a mean increase of 0.2 percentage points over baseline.

Reading Fluency. Figure 3.2 and Table 3.4 show Dan’s reading fluency rate across baseline and peer tutoring sessions. During baseline, he had a mean of 29.2 words per minute with a range of 20 to 34 words on the DIBELS passages. During intervention, Dan’s reading fluency rate increased to a mean of 32.9 words with a range of 16 to 61 words on the DIBELS passages and a mean rate of 48.8 words with a range of 41 to 59 words on the constructed paragraphs. Hence, a mean increase over baseline was seen for DIBELS passages with 3.7 words per minute. In addition, a difference of 15.9 wpm was evident between the two assessments during intervention.

Reading Comprehension. Table 3.5 and Figure 3.3 show Dan’s number of comprehension questions answered correctly during baseline and peer tutoring sessions. The mean number of comprehension questions answered correctly during baseline was 4 with a range of 3 to 5. During peer tutoring, the mean number of correct comprehension questions increased both on the DIBELS passages and the constructed paragraphs. The average correct answers were 4.2 with a range of 3 to 5 on the DIBELS passages and 4.6 with a range of 3 to 5 on the constructed paragraphs. There was a mean increase over baseline of 0.2 responses on the DIBELS passages, and a difference of 0.4 responses between the constructed paragraphs and the DIBELS passages during peer tutoring.

Maintenance. Figure 3.4 shows the number of words Dan retained across assessment sessions. His mean number of words retained across the 10 sessions was 17.9 with a range of 16 to 19, for a mean retention of 89.4%.
Pretest and Posttest results. According to Table 3.6, Dan’s performance on the Letter-Word Identification subtest during the pretest was equivalent to the 2.0-grade level. During the posttest, his performance on the subtest increased to the grade equivalent of 2.4, for a 4-month gain. On the Reading Fluency subtest, Dan was reading at the 2.0-grade level during the pretest. However, a decrease of 1 month was shown on the posttest, where the student had a grade equivalent of 1.9. On the Passage Comprehension subtest, Dan’s performance was equivalent to the grade level of 1.8 during the pretest. His performance increased by one month during the posttest, reaching the 1.9 grade equivalent. Finally, on the Word Attack subtest the student was able to perform at the 1.4-grade level during the pretest. However, his word attack skills improved by 9 months during the posttest, where he earned a grade equivalent of 2.3.

Table 3.7 shows that Dan earned a score of 23 at the middle of the year DORF’s benchmark assessment. Middle year’s benchmark goals indicated that his reading status based on the score earned was at-risk. At the end of the year, Dan achieved a score of 45 on the second benchmark assessment. This score showed that the student was considered still at-risk by the end of the year DORF’s benchmark goals and that substantial intervention was required for him.

Table 3.8 shows the overall maintenance assessment conducted at the end of the study. Dan recognized correctly 142 out of 156 words presented to him. Thus, his percentage of retention was 91%.

Table 3.9 shows that Dan identified correctly an average of 83.4% (50/60) of the second-grade words during the pretest and 95% (57/60) during the posttest, for an average increase of 11.6 percentage points. Dan identified correctly an average of 35.4%
(17/48) of the third-grade words during the pretest and 91.6% (44/48) during the posttest, with an average increase of 56.2 percentage points over pretest.

Student 6: “Susan”

Susan participated in the study for a total of 63 out of 69 tutoring sessions (95.6%). Her three absences were during baseline. At the beginning of peer tutoring, Susan was paired with Dan but later on she had Dignity as her partner.

Acquisition of Sight Words. Susan recognized a total of 149 new sight words during intervention; 63 were from the teacher’s list and 86 were from other sources. Figure 3.1 shows the number of weekly sight words recognized by the student across sessions. Her weekly pretests under baseline showed a mean of 2 out of 5 words. Table 3.3 indicates that her mean number of words acquired during the 18 baseline sessions was 4.07 with a range of 2 to 5 words. The weekly pretests under intervention averaged 1.82 out of 10 words. The mean number of words recognized during peer tutoring was 9.04 with a range of 5 to 10 words. Her mean percentage of correct responses was 79.5% during baseline and 90.4% during intervention. Hence, a mean increase of 9 percentage points over baseline was evident.

Reading Fluency. Figure 3.2 and Table 3.4 present Susan’s reading fluency rate across baseline and peer tutoring sessions. During baseline, she had a mean of 23.4 words per minute with a range of 13 to 32 words on the DIBELS passages. During intervention, Susan’s reading fluency rate increased to a mean of 26.8 words with a range of 14 to 40 words on the DIBELS passages and a mean rate of 41.2 words with a range of 26 to 51 words on the constructed paragraphs. Thus, a mean increase over baseline was noted for
the DIBELS passages with 3.4 words per minute. In addition, a difference of 14.4 wpm was evident between the two assessments during intervention.

*Reading Comprehension.* Table 3.5 and Figure 3.3 show Susan’s number of comprehension questions answered correctly during baseline and peer tutoring sessions. The mean number of comprehension questions answered correctly during baseline was 1.6 with a range of 0 to 3 on the DIBELS passages. During the peer tutoring condition, her mean number of correct comprehension questions increased both on DIBELS passages and constructed paragraphs. The average questions answered correctly was 3.2 with a range of 0 to 5 on DIBELS passages and 4.5 with a range of 3 to 5 on constructed paragraphs, for a mean increase over baseline of 1.6 responses on the DIBELS passages. A difference of 1.3 responses was evident between the constructed paragraphs and the DIBELS passages during intervention.

*Maintenance.* Figure 3.4 shows the number of words Susan retained across assessment sessions conducted every two weeks. Her mean number of words retained across the 10 sessions was 18.2 with a range of 16 to 20, thereby retaining 91.1% of the words.

*Pretest and Posttest results.* According to Table 3.6, Susan’s performance on the Letter-Word Identification subtest during the pretest was equivalent to the 1.9-grade level. During the posttest, her performance on the subtest increased to the grade equivalent of 2.3. Thus, a 4-month gain was represented on this subtest. On the Reading Fluency subtest, Susan was reading at the first-grade level during the pretest. An increase of 2 months was shown on the posttest, where the student earned a grade equivalent of 1.2. On the Passage Comprehension subtest, Susan’s performance was equivalent to the
1.4-grade level during the pretest. Her performance increased by one month during the posttest, reaching the grade equivalent of 1.5. Finally, on the Word Attack subtest the student was able to perform at the first-grade level during pretest and posttest.

Table 3.7 shows that Susan earned a score of 16 at the middle of the year DORF's benchmark assessment. Middle year's benchmark goals indicated that her reading status based on the score earned was at-risk. At the end of the year, Susan got 28 on the second benchmark assessment. This score showed that the student was considered to be still at-risk by the end of the year DORF's benchmark goals and that substantial intervention was required for her.

Table 3.8 shows the overall maintenance assessment conducted at the end of the study. Susan recognized correctly 132 out of 149 words presented to her. Thus, her percentage of retention was 88.5%.

Table 3.9 represents the pre and posttest results on the second- and third-grade word lists. Susan identified correctly an average of 55% (33/60) of the second-grade words during the pretest and 86.6% (52/60) during the posttest, for an average increase of 31.6 percentage points. Data obtained for the third-grade words during the posttest showed an average accuracy of 85.4% (41/48). No pretest data were obtained for third-grade words because of Susan's average performance on the second-grade word list.

**Group scores for the four dependent measures**

Overall group means during baseline and intervention were calculated by adding all the mean numbers of sight words recognized by the six target students and then dividing by the number of students. The results are presented in Table 3.1. The mean
number of words recognized was 3.97 during baseline and 9.21 during peer tutoring. The mean percentage of words recognized by all students during baseline was 79.5% whilst the mean percentage of words during intervention was 92.1%. The difference between the two mean percentages represents an average increase of 12.6 percentage points of students' overall performance during intervention.

Group results for reading fluency are reported in Table 3.2. Listed are the group mean numbers of words read in one-minute timings during baseline and peer tutoring. During baseline, the group mean fluency rate was 22.4 words per minute. The group mean increased during intervention to 26.3 words on the DIBELS passages and 40 words on the constructed paragraphs. Hence, a mean increase over baseline was evident on the DIBELS passages of 4 wpm. In addition, there was a difference of 13.7 wpm between the two assessments during peer tutoring.

The group results for reading comprehension are shown on the Table 3.3. During baseline, the group averaged 2.8 comprehension questions answered correctly. The group mean comprehension questions during intervention increased to 3.9 questions on the DIBELS passages and 4.5 questions on the constructed paragraphs. An increase over baseline was seen on the DIBELS passages with 1.2 correct answers. A difference of 0.6 responses was found between the DIBELS passages and the constructed paragraphs during intervention.

Group data for maintenance assessments conducted for sight words are reported. The overall group mean of retention was 17.48 out of 20 words, for a mean retention of 87.4%.
Pre and posttest results for the group are reported on Tables 3.4 and 3.7. Table 3.4 shows the group mean on the four subtests of the Woodcock Test of Achievement. The Letter-Word Identification subtest had a group mean of 1.8 grade equivalent during the pretest and a group mean of 2.3 grade equivalent during the posttest. There was a group mean increase of 5 months by the end of peer tutoring. The Reading Fluency subtest showed a group mean grade equivalent of 1.4 during the pretest and 1.5 during the posttest, for a one-month mean increase. The Passage Comprehension subtest had a group mean grade equivalent of 1.4 during the pretest and 1.7 during the posttest. The difference represents a 3-month mean gain on the passage comprehension area of the subtest. Finally, on the Word Attack subtest the students had a group mean grade equivalent of 1.2 at the pretest but a 1.9 mean grade equivalent at the posttest. Hence, students presented a 7-month mean increase in the word attack area of the subtest.

Table 3.7 presents students' performance on the second- and third-grade word list during pre and posttest. Pretest data for the third-grade word list were obtained only for two target students since they had achieved high on the second-grade word list. Group mean for the second-grade word list was 34.6 during pretest and 52.1 during posttest, for an average increase of 29.1% over pretest. Group means for the third-grade word list during the pretest and increase over pretest are reported based only on two target students, since no data were obtained for the rest of the group during the pretest. The group mean for the third-grade word list was 16 during the pretest and 39.8 during the posttest. A mean increase over pretest for two students was 28 out of 48 words for 58.3%.
Social Validity

One way to evaluate the success and the likelihood of continued use of the intervention is to assess the participants’ satisfaction (Miller et al., 1994). For this purpose, three questionnaires were developed to evaluate the students’ (see Appendix L), teachers’ (see Appendix K) and parents’ (see Appendix J) satisfaction about the program.

Students’ Satisfaction Results

At the end of the peer tutoring a post doctoral student, who was familiar with the peer tutoring, interviewed the six target students by asking their opinions based on items from the questionnaire. The questionnaire had 12 questions. The first six questions required the students to rate to what extent they agreed with the question, for example “Like very much” - “Didn’t feel anything” - “Didn’t like.” The next 6 questions were open-ended and students were required to express their thoughts and feelings about the components of the intervention.

Table 3.10 presents a summary of the students’ responses. Analysis of the students’ questionnaires revealed that five out of six students answered that they liked the peer tutoring very much and only one student said that she did not feel anything because sometimes she was getting the words wrong.

Half of the students liked being a tutor and specifically one of them said that she liked being a tutor but she did not like her partner. Two students did not express any positive or negative feelings about being a tutor and the last student indicated that he did not like being a tutor because his partner kept talking.
In terms of being a tutee, four students liked it very much but two other students indicated that they did not like being tutees because they had problems with their partner. One of them said “She keeps going slowly” and the second one said “My partner doesn’t say the word.”

Four students liked practicing their words during peer tutoring. One student did not feel anything about practicing the words during peer tutoring and another indicated that he did not like practicing his words during Tutor Huddle because his partners were not working as a team. However, all students very much liked coloring boxes on their progress chart and like the prices they received.

Three students noted that they liked testing time as the best part of peer tutoring while two others indicated the starcards and prizes. Another student liked to start first during peer tutoring. In response to any component of the peer tutoring that they did not like, one student chose testing because he said “If I got the words wrong, I wouldn’t be able to color the boxes.” However, half of them indicated that they did not like their partner. Specifically, one student said “I don’t like when she is mean to me,” another one revealed “I don’t like tutoring each other. My partner kept saying the wrong words” and the third student said “I don’t like when people go slow.” The last two students did not make any comments on this question.

Most of the students indicated that they learned more words when they were tutees and only one of them said that she learned more words as a tutor. Most of the students preferred peer tutoring over working with the teacher in small groups. However, two students chose working in small groups. This answer was a result of their dislike of working with their partner.
If they were to change anything about peer tutoring, one suggested “I would change saying good job to saying terrific and wonderful.” Another student wanted to change the testing time but he could not explain it further when he was asked the reason. Another student suggested that she was going to change the words to easier ones. Two other students suggested that they would change partners. In fact one of them suggested “I would change partner every week.” This particular student also had another idea “I’d change the coloring boxes to circles.” Finally, the last student did not suggest anything.

The last question was giving the students the opportunity to add any other thoughts they had about peer tutoring. Only two students expressed their thoughts. One student answered “I liked saying the words. I liked telling my partner the words and I also liked telling my partner super, wonderful, fantastic, good job.”

**Teachers’ Satisfaction Results**

Questionnaires were given to the general and special education teachers. The questionnaire consisted of 12 items requiring the teachers to rate whether they Strongly Agree, Agree, Disagree or Strongly Disagree on specific statements. See Appendix K for the items included in the questionnaire. One open-ended question asking teachers to state any modifications that they would make if they were to implement the program in the future was included. The other open-ended question was left for writing any additional thoughts and comments about the intervention.

Results showed that both teachers strongly agreed to statement 1 and 11. That is, both considered strongly that sight word recognition is a critical skill for the students to have in their future life and they also enjoyed strongly participating in the project. For
statements 3, 4, 6, 7, 8 and 9 they agreed that peer tutoring helped students improved their reading fluency, comprehension skills and that the intervention was easy to implement. They also agreed that the time for implementing it was adequate and appropriate and the procedures helped students actively engaged in their learning. The reward system of the program helped students to promote their academic and social performance. In statements 2, 5 and 10 the general education teacher strongly agreed that the program improved students’ sight word recognition and overall reading skills. She also noted that she would strongly recommend the program to other teachers. The special education teacher agreed with the statements 2, 5 and 10. On the first open-ended question, the general education teacher indicated that students do not need 4 minutes in Tutor Huddle during the third peer tutoring session of each week.

Finally, on the last open-ended question the general education teacher commented the following: “This has worked very well for my special education students. The words are not always recognized in reading but, overall, it is better that they learned the words. The special education students especially need repetition so that they can feel successful.” The special education teacher indicated that, “My students gained in their reading skills through the peer tutoring. I enjoyed working with the F.M. (general education teacher’s name).”

Parents/Guardians’ Satisfaction Results

The parents’ questionnaire consisted of a 7 item Likert-scale in which parents/guardians were asked to rate the items by choosing Agree Strongly, Agree, Disagree or Disagree Strongly. At the end of the questionnaire, there was one open-
ended question where the parents/guardians were given the opportunity to write any additional comments or thoughts about the program. The response rate for the questionnaires was 100%.

Table 3.11 presents parents’ satisfaction results. Results showed that parents overall were satisfied by having their children participate in peer tutoring and all of their answers were within the range of Agree Strongly and Agreed. Most of the parents agreed strongly that learning sight words is an important skill for their child. Two of them responded that they just agreed with the statement. All of them, except one, strongly agreed that peer tutoring helped their children to become better readers. The other parent indicated that she just agreed with the statement. Most of them indicated strongly that their child was able to explain the program to them in a positive way. All the parents, except one, felt strongly that their child liked the program. The other parent just agreed with the statement. All the parents would strongly like their child to participate in the peer tutoring program for next year. Finally, most of the parents strongly agreed that their child participated in the program. Two parents answered that they just agreed with the statement.

Finally, on the last open-ended question, three out of six parents wrote their thoughts about the peer tutoring program. These were: “Dignity wasn’t a good reader but once getting started the peer tutoring, she now reads about the level she should. I am very happy they offer this at the school.” (Mother) “He needs more work but I can see the improvement.” (Mother) “Irena is a very quiet child and at first I really didn’t know if she would do good in peer tutoring. Then when I read the reports I saw she improved a lot” (Mother).
Summary

Overall, the data indicate that most of the target students made gains in identifying high frequency sight words over baseline conditions. Although one student showed a small percentage decrease compared to baseline, this was due to a ceiling effect where the student already knew nearly all the words presented by the teacher during baseline. This student actually showed the most reading progress on all the measures used in this study. All students increased the number of words recognized from 5 to 10 during peer tutoring. Additive effects were also observed for reading fluency and reading comprehension with substantial gains made on the constructed paragraphs. For example, Susan diagnosed as a special education student had an average fluency rate of 26.8 on the DIBELS passages but a higher rate on the constructed paragraphs. Her mean reading fluency rate was increased by 14.4 wpm on the constructed paragraphs. Similar gains were observed for Erin, Steve, Irena and Dan. The mean percentages of retention were high for all students, except one. Erin had a mean percentage of 72% retention. Her frequent absences from school undoubtedly influenced her retention. During peer tutoring there were times (weeks 4, 14, 19 and 20) that she would participate only once per week.

Social validity measures for the students showed mixed results. Although most of the students liked the procedure, some of them complained that their partner was not cooperative during practice time. Teachers and parents expressed their satisfaction and pleasure for having students participate in peer tutoring.
<table>
<thead>
<tr>
<th>Dependent Measure</th>
<th>Collected/Total Sessions</th>
<th>Mean Agreement</th>
<th>Range of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest of Sight Words</td>
<td>8/23</td>
<td>35%</td>
<td>98.5%</td>
</tr>
<tr>
<td>Sight Words</td>
<td>25/69</td>
<td>36%</td>
<td>99.10%</td>
</tr>
<tr>
<td>Reading Fluency for DIBELS passages</td>
<td>18/39</td>
<td>46%</td>
<td>96.2%</td>
</tr>
<tr>
<td>Reading Fluency for Constructed paragraphs</td>
<td>4/10</td>
<td>40%</td>
<td>96.7%</td>
</tr>
<tr>
<td>Reading Comprehension for DIBELS passages</td>
<td>11/23</td>
<td>47%</td>
<td>99.6%</td>
</tr>
<tr>
<td>Reading Comprehension for Constructed paragraphs</td>
<td>4/10</td>
<td>40%</td>
<td>99%</td>
</tr>
<tr>
<td>Maintenance of Sight Words</td>
<td>4/9</td>
<td>44%</td>
<td>98.7%</td>
</tr>
</tbody>
</table>

Table 3.1. Interobserver agreement for the dependent measures of the study

<table>
<thead>
<tr>
<th>Tutor’s name</th>
<th>Collected/Total Sessions</th>
<th>Mean Agreement</th>
<th>Range of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erin</td>
<td>6/18</td>
<td>33.3%</td>
<td>92.7%</td>
</tr>
<tr>
<td>Steve</td>
<td>6/18</td>
<td>33.3%</td>
<td>95.8%</td>
</tr>
<tr>
<td>Dignity</td>
<td>4/18</td>
<td>22.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Irena</td>
<td>7/18</td>
<td>38.8%</td>
<td>93.7%</td>
</tr>
<tr>
<td>Dan</td>
<td>6/18</td>
<td>33.3%</td>
<td>97.9%</td>
</tr>
<tr>
<td>Susan</td>
<td>3/18</td>
<td>16.6%</td>
<td>100%</td>
</tr>
<tr>
<td>Group Mean</td>
<td>32/60</td>
<td>53.3%</td>
<td>96.7%</td>
</tr>
</tbody>
</table>

Table 3.2. Procedural integrity for tutor behaviors
<table>
<thead>
<tr>
<th>Students</th>
<th>Baseline&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Peer Tutoring&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Increase/Decrease over Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (%)</td>
<td>Mean (%)</td>
<td></td>
</tr>
<tr>
<td>Erin</td>
<td>2.14 (1-4)&lt;sup&gt;3&lt;/sup&gt; 42.8%</td>
<td>8.86 (6-10) 88.6%</td>
<td>+45.8%</td>
</tr>
<tr>
<td>Steve</td>
<td>3.57 (2-5) 71.4%</td>
<td>9.10 (4-10) 91%</td>
<td>+19.6%</td>
</tr>
<tr>
<td>Irena</td>
<td>4.87 (4-5) 97.4%</td>
<td>9.65 (6-10) 96.5%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>Dignity</td>
<td>4.53 (2-5) 90.6%</td>
<td>9.28 (6-10) 92.8%</td>
<td>+2.2%</td>
</tr>
<tr>
<td>Dan</td>
<td>4.67 (3-5) 93.4%</td>
<td>9.36 (6-10) 93.6%</td>
<td>+0.2%</td>
</tr>
<tr>
<td>Susan</td>
<td>4.07 (2-5) 81.4%</td>
<td>9.04 (5-10) 90.4%</td>
<td>+9%</td>
</tr>
<tr>
<td>Group Mean</td>
<td>3.97 79.5%</td>
<td>9.21 92.1%</td>
<td>+12.6%</td>
</tr>
</tbody>
</table>

**Notes:**
1. The number of words practiced during baseline was 5.
2. The number of words practiced during peer tutoring was 10.
3. Parenthesis shows the range of weekly sight words recognized, including minimum and maximum numbers.
4. The "+" indicates increase and the "-" indicates decrease.

Table 3.3. Means and percentages for number of sight words recognized during baseline and peer tutoring across sessions
Figure 3.1: Number of sight words recognized across baseline and peer tutoring sessions
Figure 3.2. Number of words read correctly per minute across sessions on DIBELS and constructed paragraphs.
Figure 3.3. Number of comprehension questions answered correctly across sessions on DIBELS passages and constructed paragraphs.
<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>Peer Tutoring</th>
<th>Difference between Baseline and Peer Tutoring</th>
<th>Increase over Dibels™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erin</td>
<td>14.7</td>
<td>16.5</td>
<td>11.5</td>
<td>+1.8</td>
</tr>
<tr>
<td>Steve</td>
<td>20.5</td>
<td>23</td>
<td>13.4</td>
<td>+2.5</td>
</tr>
<tr>
<td>Irena</td>
<td>24.6</td>
<td>35.4</td>
<td>18.7</td>
<td>+10.8</td>
</tr>
<tr>
<td>Dignity</td>
<td>21.8</td>
<td>23.3</td>
<td>8.2</td>
<td>+1.5</td>
</tr>
<tr>
<td>Dan</td>
<td>29.2</td>
<td>32.9</td>
<td>15.9</td>
<td>+3.7</td>
</tr>
<tr>
<td>Susan</td>
<td>23.4</td>
<td>26.8</td>
<td>14.4</td>
<td>+3.4</td>
</tr>
<tr>
<td>Group Mean</td>
<td>22.4</td>
<td>26.3</td>
<td>13.7</td>
<td>+4</td>
</tr>
</tbody>
</table>

Table 3.4. Average number of words read per minute across baseline and peer tutoring sessions

<table>
<thead>
<tr>
<th>Student</th>
<th>Baseline</th>
<th>Peer Tutoring</th>
<th>Difference between Baseline and Peer Tutoring</th>
<th>Increase over Dibels™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erin</td>
<td>2.3</td>
<td>3.9</td>
<td>0.5</td>
<td>+1.6</td>
</tr>
<tr>
<td>Steve</td>
<td>3.0</td>
<td>3.8</td>
<td>0.8</td>
<td>+0.8</td>
</tr>
<tr>
<td>Irena</td>
<td>2.8</td>
<td>4.2</td>
<td>0.2</td>
<td>+1.4</td>
</tr>
<tr>
<td>Dignity</td>
<td>2.8</td>
<td>4.1</td>
<td>0.4</td>
<td>+1.3</td>
</tr>
<tr>
<td>Dan</td>
<td>4.0</td>
<td>4.2</td>
<td>0.4</td>
<td>+0.2</td>
</tr>
<tr>
<td>Susan</td>
<td>1.6</td>
<td>3.2</td>
<td>1.3</td>
<td>+1.6</td>
</tr>
<tr>
<td>Group Mean</td>
<td>2.8</td>
<td>3.9</td>
<td>0.6</td>
<td>+1.2</td>
</tr>
</tbody>
</table>

Table 3.5. Average number of comprehension questions answered correctly across baseline and peer tutoring sessions
Figure 3.4. Number of words retained across sessions by the first pair under intervention
Figure 3.5. Number of words retained across sessions by the second pair under intervention
Figure 3.6. Number of words retained across sessions by the third pair under on intervention
<table>
<thead>
<tr>
<th>Student</th>
<th>Pre/Post test date</th>
<th>Age</th>
<th>Letter-Word Identification</th>
<th>Reading Fluency</th>
<th>Passage Comprehension</th>
<th>Word Attack</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>AE</td>
<td>GE</td>
<td>AE</td>
<td>GE</td>
</tr>
<tr>
<td>Erin</td>
<td>10/08/03</td>
<td>7-6</td>
<td>6-11</td>
<td>1.6</td>
<td>&lt;6-1</td>
<td>&lt;K.9</td>
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<tr>
<td></td>
<td>05/07/04</td>
<td>8-1</td>
<td>7-1</td>
<td>1.8</td>
<td>&lt;5-10</td>
<td>&lt;K.7</td>
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<td>Steve</td>
<td>10/21/03</td>
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<td>7-0</td>
<td>1.6</td>
<td>6-11</td>
<td>1.6</td>
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<td>6-7</td>
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<td>8-4</td>
<td>3.0</td>
<td>7-4</td>
<td>2.0</td>
</tr>
<tr>
<td>Dignity</td>
<td>10/24/03</td>
<td>7-5</td>
<td>7-3</td>
<td>1.9</td>
<td>7-2</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>05/07/04</td>
<td>8-0</td>
<td>7-9</td>
<td>2.4</td>
<td>6-10</td>
<td>1.6</td>
</tr>
<tr>
<td>Dan</td>
<td>10/21/03</td>
<td>8-3</td>
<td>7-4</td>
<td>2.0</td>
<td>7-4</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>05/07/04</td>
<td>8-10</td>
<td>7-9</td>
<td>2.4</td>
<td>7-3</td>
<td>1.9</td>
</tr>
<tr>
<td>Susan</td>
<td>10/08/03</td>
<td>7-1</td>
<td>7-3</td>
<td>1.9</td>
<td>6-2</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>05/07/04</td>
<td>7-8</td>
<td>7-8</td>
<td>2.3</td>
<td>6-6</td>
<td>1.2</td>
</tr>
</tbody>
</table>

| Group mean | Pretest | 1.8 | 1.4 | 1.4 | 1.2 |
|            | Posttest| 2.3 | 1.5 | 1.7 | 1.9 |

+5 | +1 | +3 | +7

Table 3.6. Pretest and posttest results of the Woodcock-Johnson III Tests of Achievement
<table>
<thead>
<tr>
<th>Student</th>
<th>Benchmark Assessment 1</th>
<th>Benchmark Assessment 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Winter - Middle of Grade</td>
<td>Spring - End of Grade</td>
</tr>
<tr>
<td></td>
<td>Score</td>
<td>Reading Status</td>
</tr>
<tr>
<td>Erin</td>
<td>16</td>
<td>At risk (DORF&gt;=68)^a</td>
</tr>
<tr>
<td>Steve</td>
<td>14</td>
<td>At risk (DORF&gt;=68)^a</td>
</tr>
<tr>
<td>Irena</td>
<td>22</td>
<td>At risk (DORF&gt;=68)^a</td>
</tr>
<tr>
<td>Dignity</td>
<td>18</td>
<td>At risk (DORF&gt;=68)^a</td>
</tr>
<tr>
<td>Dan^b</td>
<td>23</td>
<td>At risk (DORF&gt;=92)^ab</td>
</tr>
<tr>
<td>Susan</td>
<td>16</td>
<td>At risk (DORF&gt;=68)^a</td>
</tr>
</tbody>
</table>

*Notes:*
^a* The parenthesis indicates the DIBELS benchmark goal for a student to be considered at low risk.

^b* Dus' benchmark goals are different from the rest of the students because he is at the third grade.

Table 3.7. Results of the winter and spring DORF's benchmark assessments

<table>
<thead>
<tr>
<th>Student</th>
<th># Sessions^a</th>
<th>Sight Words^b</th>
<th>Correct Sight Words</th>
<th>Percentage of Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erin</td>
<td>44/60</td>
<td>166</td>
<td>110</td>
<td>66.2%</td>
</tr>
<tr>
<td>Steve</td>
<td>60/60</td>
<td>179</td>
<td>164</td>
<td>91.6%</td>
</tr>
<tr>
<td>Irena</td>
<td>52/54</td>
<td>159</td>
<td>144</td>
<td>90.5%</td>
</tr>
<tr>
<td>Dignity</td>
<td>53/54</td>
<td>166</td>
<td>156</td>
<td>93.9%</td>
</tr>
<tr>
<td>Dan</td>
<td>50/51</td>
<td>156</td>
<td>142</td>
<td>91%</td>
</tr>
<tr>
<td>Susan</td>
<td>51/51</td>
<td>149</td>
<td>132</td>
<td>88.5%</td>
</tr>
</tbody>
</table>

*Notes:*
^a* The number of sessions students participated only in peer tutoring.

^b* Maintenance assessment contained sight words that were identified as different in each student's bank of words. The total number of words that students have had in their bank by the end of peer tutoring included not only different words but also repeated ones.

Table 3.8. Percentages of peer tutoring sight words retained at the cumulative maintenance assessment
<table>
<thead>
<tr>
<th>Student</th>
<th>2nd grade word list</th>
<th>3rd grade word list</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Erin</td>
<td>12/60</td>
<td>34/60</td>
</tr>
<tr>
<td>Steve</td>
<td>36/60</td>
<td>53/60</td>
</tr>
<tr>
<td>Irena</td>
<td>47/60</td>
<td>59/60</td>
</tr>
<tr>
<td>Dignity</td>
<td>30/60</td>
<td>58/60</td>
</tr>
<tr>
<td>Dan</td>
<td>50/60</td>
<td>57/60</td>
</tr>
<tr>
<td>Susan</td>
<td>33/60</td>
<td>52/60</td>
</tr>
<tr>
<td>Group mean</td>
<td>34.6</td>
<td>52.1</td>
</tr>
</tbody>
</table>

Notes:

<sup>a</sup> No pretest was conducted for four target students on the 3rd grade word list

<sup>b</sup> Group means for pretest and increase over pretest for the 3rd grade word list were calculated based only on two students.

Table 3.9. Pretest and posttest results of the second- and third-grade word lists
<table>
<thead>
<tr>
<th>Questions</th>
<th>Like very much</th>
<th>Didn’t feel anything</th>
<th>Didn’t like</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do you feel about peer tutoring?</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. How do you like being a tutor (i.e. teacher)?</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. How do you like being a tutee (i.e. student)?</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. What do you think about practicing the words during peer tutoring?</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5. How do you like coloring boxes on your chart?</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. What do you think of the prizes?</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Which part of peer tutoring did you like the best?</td>
<td>-testing</td>
<td>-testing my partner</td>
<td>-begin first</td>
</tr>
<tr>
<td></td>
<td>-starcards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-begin first</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Which part of peer tutoring didn’t you like?</td>
<td>-when my partner goes slow</td>
<td>-prizes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-when my partner is mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Did you learn more words when you were the tutor or when you were the student?</td>
<td>-student (5)</td>
<td>-tutor (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Would you rather have peer tutoring or be in a small group of kids working with the teacher to learn words?</td>
<td>-peer tutoring (4)</td>
<td>-small group (2)</td>
<td></td>
</tr>
<tr>
<td>11. If you were to change anything about peer tutoring, what would you change?</td>
<td>-change to easier words</td>
<td>-testing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-changing from saying “Good Job” to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Wonderful,” “Terrific”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-change partner</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-change partners every week</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-change coloring boxes to circles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Is there anything else you would like to tell me about peer tutoring?</td>
<td>-I like saying the words and I like to tell my partner the words. I like to say to my partner “Wonderful”, “Super”, “Good Job.”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.10. Students’ responses on the satisfaction evaluation
<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Agree (SA)</th>
<th>Agree (A)</th>
<th>Disagree (D)</th>
<th>Strongly Disagree (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learning is an important skill for my child.</td>
<td>SA 4</td>
<td>A 2</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>2. I feel that peer tutoring helped my child to become a better reader.</td>
<td>SA 5</td>
<td>A 1</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>3. My child was able to explain the program to me in a positive way.</td>
<td>SA 4</td>
<td>A 2</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>4. I feel that my child enjoyed the peer tutoring.</td>
<td>SA 5</td>
<td>A 1</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>5. I would like my child to continue participating in the peer tutoring program at school.</td>
<td>SA 6</td>
<td>A 1</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>6. I feel that peer tutoring is important and beneficial because it helps my child to learn more words.</td>
<td>SA 5</td>
<td>A 1</td>
<td>D</td>
<td>SD</td>
</tr>
<tr>
<td>7. I am glad my child participated in the peer tutoring program.</td>
<td>SA 4</td>
<td>A 2</td>
<td>D</td>
<td>SD</td>
</tr>
</tbody>
</table>

Table 3.11. Parents’ responses on the satisfaction evaluation
CHAPTER 4
DISCUSSION

This chapter discusses the results pertaining to the effects of total class peer tutoring on the acquisition and maintenance of sight words, reading fluency and comprehension of students at risk for reading failure. Each of the four research questions, specified in Chapter 1, is addressed. Limitations to the study are examined and implications for practice and future research are discussed. Finally, a summary of the study is presented.

Research Questions

What are the effects of total class peer tutoring on the acquisition of high frequency sight words for at-risk urban second- and third-grade students?

The results of this study showed a functional relationship between the acquisition of sight words and total class peer tutoring. These results lend support to the findings of other studies documenting that peer tutoring is an effective instructional procedure for the acquisition of sight words (Butler, 1999; Heron et al., 1983; Heward et al., 1982), especially for at-risk urban students (Nazzal 2002; Gardner et al., 2001; Giesecke & Cartledge, 1993; Cochran et al., 1993). Overall, the students as a group recognized a
greater number of sight words during peer tutoring than during baseline. However, there were differential effects in the extent to which students acquired the sight words.

The largest gains in the acquisition of sight words were made by Erin. Her mean percentage during baseline was 42.8%. That is, she recognized an average of 2 out of 5 teachers’ words during baseline. Her acquisition of sight words was increased by 45.8 points during peer tutoring, representing an average of 8.84 out of 10 words. This is particularly noteworthy for Erin because she was the only student with the highest number of absences during intervention (16 out of 60). As it was mentioned in Chapter 3, there were occasions (weeks 4, 14, 19 and 20) when she would participate only in one out of three tutoring sessions for each week. Therefore, she had only one opportunity out of three to practice 10 new words per week. It is hypothesized that Erin would have shown even greater gains had she not missed so many sessions. Erin’s gains are particularly noteworthy when considering that she was receiving services from the special education class, but substantial improvement was not observed until peer tutoring. The gains evidenced with Erin also verify the well-documented view that peer-mediated instruction is a highly effective and validated strategy for including students with disabilities in mainstream settings (Arreaga-Mayer, 1998; Greenwood & Delquadri, 1995).

Steve, Dignity, Dan, and Susan also showed improvements in their acquisition of sight words during intervention. However, their mean percentage increases were not as high compared to Erin’s gains. A ceiling effect could account for the students’ performance. There are two possible explanations for this outcome. First, Dignity, Dan and Susan already had high pretest scores before baseline and they were able to identify 2-4 words out of 5 prior to any teacher instruction. Interestingly, Dan could easily
identify a mean of 4.5 out of 5 teacher’s words during pretests. The high scores for Dan during pretests may be attributed to the fact that he was the only third-grade student in the group and many of the teacher’s words were at the second-grade level. It is difficult to assess Steve’s progress due to his small number of pretest sessions (i.e., 2) prior to the intervention. Second, during intervention all four students had high pretest scores with the five teacher’s words. That is, even before peer tutoring would start these students were able to identify at least 2 out of the 5 teachers’ sight words. Although students had to practice a total of 10 words during each session, they were starting their first tutoring session every week by knowing at least 2 out of 10 words. Unfortunately, no changes could be made to begin the students each week with all unknown words because half of the words chosen in total class peer tutoring were based on the predetermined general education teacher’s sight word list. This condition points to the controlling effect teachers have on students’ learning and overall academic growth. Teachers with low expectations of their students are inclined to prevent lower quantities and less challenging material. This is often the case for teachers working in urban settings where low-expectations and a lack of efficacy often result in lower teaching standards and fewer teacher efforts for low-achieving urban learners (Warren, 2002). For example, in this study four out of six targeted students knew at least 50% of the words prior to instruction presented each week by the classroom teacher. Higher standards and expectations require that the teacher present and teach a greater quantity of words and words that are not in students’ sight word repertoires.

A finding of particular interest is the fact that during the last 4 weeks (sessions 58-69) of the study most of the students’ mean percentages of correct sight words were
higher than during previous tutoring sessions. For these 4 weeks, the teacher stopped introducing any words from her list and the experimenter had to identify a total of 10 sight words that students misread during weekly pretests. Group mean percentage of correct words was 9.35 out of 10 words, with Irena and Steve achieving the highest means of 9.83 and 9.58 respectively. In other words, students achieved higher mean correct percentages when they did not receive teacher-directed instruction on part of the word list, providing additional evidence of the beneficial effect of peer-mediated interventions.

Irena's data indicates a mean percentage decrease of 0.9% over baseline, but other factors would explain this effect. Irena began the study with high pretest scores of 4.4 out of 5 teacher's words during baseline. In other words, even before the teacher presented these 5 words, Irena could easily identify them. Thus, her mean percentage of correct words during baseline was very high (97.4%). During peer tutoring, however, she was presented with more challenging words that were 1-3 grade levels above her grade level, resulting in a mean of 2.89 known words out of 10. These more difficult words did not permit Irena to exceed her very high baseline levels established with much easier words. Nevertheless, Irena, as a second grader, was still able to learn fifth-grade level words within the same tutoring time frame as the second- and third-grade level words. Her mean of correct words was 96.5 % during intervention compared to 97.4% during baseline. Again, this is an additional opportunity to note that these urban learners are being under taught and under challenged.

Research has proved that students improve their word attack and letter-word identification skills during tutoring interventions (Scruggs & Osguthorpe, 1986; Heward
et al., 1982; Chiang et al., 1980). This was also evident in this study. The posttest results of the Woodcock-Johnson III Tests of Achievement (WJ III ACH) showed that students presented the highest group gains of five and seven months on the Letter-Word Identification and the Word Attack subtests respectively. Noteworthy, Irena presented the highest improvement in the Letter-Word Identification subtest, with an 11-month gain. In other words, she was the only student whom letter-word identification skills improved by more than one grade-level. Dignity presented the highest gains of all students in the Word-Attack subtest, with an increase of more than one grade level.

*What are the effects of total class peer tutoring on the retention of high frequency sight words for at-risk urban second- and third-grade students during bi-weekly as well as end-of-the-study maintenance checks?*

Maintenance assessments were conducted every two weeks and a cumulative maintenance evaluation was conducted at the end of the study. Results from both assessments demonstrated students’ high percentages of retention during and at the end of the study. Since the maintenance variable was added later in the study, no maintenance data were collected during baseline. Thus, comparisons between baseline and intervention cannot be made. However, students’ high retention percentages confirm the findings of other studies that examined the effects of peer tutoring on retention (Al-Hassan, 2003; Holman, 1998; Barbetta et al., 1991). That is, students were able to retain over time (e.g. after 4 months) most of the words presented during peer tutoring. Barbetta et al. (1991) suggested that high percentages of the maintained words would indicate that
words could exit the system at a faster rate, thus increasing the number of words learned. This was evident in the present study.

All students retained most of the sight words taught during the bi-weekly assessment sessions. As a group, students retained a mean of 87.4% (17.5 out of 20 words) correct words, with Dignity evidencing the highest retention of 91.7%. Erin had the lowest mean retention of 72%. For Erin, the sudden drop in retention scores during the bi-weekly sessions most likely was due to her absences from peer tutoring. For example, during weeks 4, 14, 19 and 20 she participated in one out of the three tutoring sessions. Hence, the time spent practicing the 10 new words each week was not sufficient to learn and retain those words. Interestingly, her mean retention for these four weeks was only 5 out of 10 words with a range of 4-7 sight words.

The same retention pattern was also seen in the final maintenance assessment with Dignity achieving the highest level of 94% (156/166) and Erin the lowest retention of 66.2% (110/166). The remaining students had a retention range of 88.5% to 91.6%. It is important to point out that the grade level difficulty of the words varied according to the students, ranging from second to fifth grade. For example, Irena, Dan, and Steve were able to learn fifth-grade level words during the peer tutoring. The retention findings further verify the value of peer tutoring, which provides students with extra practice and response opportunities to learn and retain words above their grade level.
What are the effects of total class peer tutoring on the oral reading fluency for at-risk urban second- and third-grade students?

It was hypothesized at the beginning of this study that students’ reading fluency could be facilitated by increasing the number of words students read immediately as a result of peer tutoring. The findings in this study show modest evidence of a relationship between sight word acquisition during peer tutoring and reading fluency. Over the course of the study the students showed greater passage fluency for both DIBELS and experimenter constructed passages. All students showed more fluency with the constructed paragraphs than with the DIBELS passages. Specifically, Irena presented the highest gains in reading fluency. For instance, her mean fluency in the DIBELS passages during baseline was approximately 24 wpm and during peer tutoring her rate increased by 11 wpm. However, her fluency was even greater in the constructed paragraphs during peer tutoring, with a mean of 54 wpm compared to a mean of 35 wpm in the DIBELS passages. A difference of 19 wpm was noted between the two assessments during peer tutoring. Noteworthy, are the gains made by Susan who had been diagnosed with a learning disability. Her fluency during peer tutoring presented a mean of 41 wpm in the constructed paragraphs compared to the approximately 27 wpm in the DIBELS passages. Again, a difference of 14 wpm was evident between the two types of passages. Similar results were found for the other students in the constructed paragraphs within a range of 28 to 48.8 wpm as opposed to 16.5 to 32.9 wpm in the DIBELS passages. Students’ greater fluency in the constructed paragraphs during peer tutoring is an indicator of the facilitating effects of a sight-word vocabulary on fluency with connected text. In other words, students were able to read more words in one-minute timings when their
connected texts (i.e. constructed paragraphs) included words that had been practiced during peer tutoring.

Despite all students’ improvements in the constructed paragraphs, the second-grade students and the third-grade student did not reach the DIBELS benchmark goal of 90 wpm for the second grade and 110 wpm for the third grade respectively. Along these lines, students’ modest fluency increase was also noted in the posttest results of the Reading Fluency subtest of the WJ III ACH. There was a group mean increase over baseline of one month, with Irena presenting again the highest gains of seven months. Both the DIBELS benchmark assessments and the WJ III ACH Reading Fluency subtest included untaught words (i.e. not found in students’ sight word vocabulary during peer tutoring) in connected texts that might probably influenced students’ passage fluency.

However, students’ gains in the constructed paragraphs suggest that students were able to generalize the words they practiced during peer tutoring in context. As described in Chapter 2, constructed paragraphs included 20 words that students had already been taught during tutoring sessions. Thus, the constructed paragraphs were considered to be a more direct assessment than the standardized DIBELS Oral Reading Fluency assessment. Assessment results of the constructed paragraphs indicated that all students were able to generalize those words in context. These patterns confirm the findings of other studies that examined the effect of peer tutoring in the generalization of words in context (Al-Hassan, 2003; Holman, 1998; Barbeta et al, 1991). That is, students are able to improve their word recognition during tutoring interventions (Heward et al., 1982; Chiang et al., 1980), thus recognizing words in context.
What are the effects of total class peer tutoring on the reading comprehension for at-risk urban second and third grade students?

It was also expected that the implementation of peer tutoring would facilitate the students’ reading comprehension skills in reading passages. Results showed students’ improvement in reading comprehension with both types of assessments, DIBELS passages and constructed paragraphs. Data again indicate that the greater gains were made by all students in the constructed paragraphs. All students were able to identify at least 4 out of 5 comprehension questions correctly during the peer tutoring. The gains made in reading comprehension must be viewed and interpreted conservatively. No claims can be made that the peer tutoring improved students’ reading comprehension skills in the passages because of the indirect relationship between the independent and dependent variable. That is, it was anticipated that after students learned to identify words correctly in peer tutoring, they would improve their reading fluency in reading passages and thus more easily comprehend the text. This indirect relationship between the peer tutoring and reading comprehension constrain the idea of supporting a direct functional relationship between the two. The indirect relationship was also evident when using the cloze comprehension procedure. As stated in the Chapter 2, the cloze procedure was based on deleting words randomly from the passages. The deleted words, however, were not always related to the words that students were practicing during peer tutoring. Although the role of sight word acquisition through peer tutoring and comprehension is interpreted cautiously, these findings do lend support to the position that the ability to immediately recognize words in text frees up brain power for comprehension that might
otherwise be consumed in decoding and word attack (Heward, 2003; Armbruster et al., 2003).

Students, as a group, increased their reading comprehension over baseline by an average of one question in the DIBELS passages, reaching the group mean of almost 4 comprehension questions by the end of the study. A greater improvement was evident in the constructed paragraphs during peer tutoring with a group mean of 4.5 questions. It can be speculated that students’ familiarity with words in the constructed paragraphs provided an opportunity for them to identify the words in context and hence increased their comprehension scores. Students’ improvement of comprehension skills was evident in the Passage Comprehension subtest of the WJIII-ACH, in which a group mean increase of three months was shown.

**Limitations of the study**

Several limitations of this study warrant further discussion. The first critical limitation was the lack of stringent measures used during pretest probes (initial pretest and weekly pretests). Students’ performance in pretest measures was not stable and this resulted in having students: (1) identify a word correctly at the initial pretest probe but identified it incorrectly during posttest probe, (2) identify a word correctly on the initial pretest probe but not when presented during the weekly pretests of the study and (3) not identify a word during the initial pretest but read it correctly during weekly pretests. This instability caused confusion as to which words students actually knew prior to the beginning of the study and which ones to include in weekly pretests. Efforts were made as to include again many words from the initial pretest in the weekly pretests. This
resulted in reducing the time of presenting to students more challenging sight words. A criterion during pretests should have been set at the beginning of the study. For example, a word would be considered correct only when a student reads it correctly on three consecutive occasions. Despite this limitation, there is good evidence that students acquired and retained a substantial set of sight words as determined by the maintenance assessments. Both the bi-weekly and posttest maintenance assessments presented similar findings of students’ high retention performance.

A second important limitation was that no pretest measures were taken for four students on the third-grade level word list. Thus, no comparisons could be made between their initial performance and the posttest performance. The pretest assessments of this study were not conducted by the experimenter.

By the end of each week, students were placing their sight words in the “STOP” pocket whether or not they could recognize all of them during the three sessions. This was considered as another significant limitation of the study because students were not given the opportunity to benefit to the full extent from the individual practice during peer tutoring. Cooke et al. (1983) suggest the criterion of three consecutive successes for a word to be placed in the “STOP” pocket. In this way, maintenance of the word is ensured.

The above limitation led to a fourth drawback. Several sight word lists were used during intervention. Using these lists, which had common words, sometimes caused problems in terms of having students identify words correctly on one list but not on another list. Inspite of the experimenter’s efforts to avoid presenting the same words during weekly pretests, there was the possibility of presenting the same word twice
during weekly pretests. A solution to this problem could have been the inclusion of only
one master word list at the beginning of the study used as a source for the weekly pretests
throughout the study.

Another drawback was student absences. Erin’s participation was problematic due
to her excessive absences during intervention, which affected her low retention rate and
low integrity scores on the tutoring procedure.

In addition, two more students presented low integrity scores during peer tutoring,
due to peer incompatibility as tutoring pairs. Although changes of tutor partners were
made during intervention because of students’ negative interactions, this did not reduce
the likelihood of having incompatible pairs again. Specifically, their interactions were not
always positive and as a result the students did not praise or prompt their partners for any
correct or incorrect responses during practice and testing time. However, students were
able to perform all the steps needed during peer tutoring.

A final limitation is the lack of interobserver agreement between the experimenter
and the second observer on the peer tutoring procedural integrity data. Although
procedural integrity data were collected only by the second observer, the experimenter
was conducting daily and frequent observations on students’ tutoring behaviors. Both
assessment measures (i.e. experimenter’s observations and second observer’s recordings)
were taken into account as to prompt and provide corrective feedback on the steps of the
procedure to the tutors.
Implications for Classroom Practices

Total class peer tutoring is considered to be an effective supplemental teaching strategy for helping students acquire basic academic skills (Heron & Heward, 2000). Research has documented the strong positive effects of peer tutoring especially on students with disabilities (Lazerson, 1980; Lazerson et al., 1988; Maher et al., 1998) and students at risk for reading failure (Cochran et al., 1993; Giesecke & Cartledge, 1993). Nazal (2002) emphasizes that “peer tutoring … deserves time in the curriculum and could promote understanding of at-risk students” (p. 79).

Total class peer tutoring is an inclusive teaching strategy that provides opportunities for high levels of active student responding and time on task. It gives ample opportunities for error correction and corrective positive feedback. Students learn by doing. Total class peer tutoring gives students with the most academic and social–emotional needs the chance to learn by being held accountable for their own academic achievement. In short, total class peer tutoring provides the structured context where urban learners can practice and improve their academic and social skills.

As an instructional strategy that includes students with disabilities in mainstream settings, total class peer tutoring gives the opportunity for the general and special education teacher to collaborate and help all students to acquire the academic knowledge, and praise their efforts. Teachers work as consultants and administrators by monitoring students’ progress and providing efficient individualized instruction.

Total class peer tutoring is cost-effective. Materials used in the procedure are inexpensive but teachers have time demands in order to structure and develop peer tutoring. That is, teachers need time to prepare the materials and train the class at the
beginning. However, after the initial preparation teacher time is spent mainly in monitoring pupil tutoring and record keeping.

Although total class peer tutoring is a structured procedure, the general education teacher could modify or add some components based on the students’ needs. For instance, the general education teacher of this study employed a cue system to make smooth transitions between tutoring activities. At the end of each phase, the timer rang and the teacher clapped her hands in a specific rhythm. The students then responded to the teacher’s cue in the same way. After she got all the students’ attention, she asked students to proceed to the next step in peer tutoring. Thus, by making this minor adaptation, she ensured that all students were actually participating and following the steps. Interestingly, the students in the class seemed to enjoy the teacher’s cuing system and all of them joined her in clapping their hands with the same pace.

Another consideration for teachers is to use highly desired rewards in order to reinforce appropriate tutoring behavior. The reward system can be modified so that, for example, the teacher might administer points to both tutor and tutee as opposed to stamps on the starcard. The tutoring pair that earns the highest number of points by the end of the week receives its award.

In short, research studies have demonstrated that total class peer tutoring is a viable, instructional alternative for general education teachers who try to meet the needs of a diversity of students within the limits of elementary classrooms.
Suggestions for Additional Research

Future research could focus on including another component during peer tutoring that enables students to practice their reading fluency in addition to sight words. That is, at the end of sight word practice students could read passages that contained the words used during peer tutoring to each other and try to achieve their reading goal. Their partner could count any errors and help student reduce them by providing corrective feedback. At the end of practice, testing could include the sight words and reading passage in one-minute timings.

Future studies might account for some of the limitations of this study. Specifically, the research might conduct pre and post fluency and comprehension assessments constructed from the tutoring sight words. These passages could serve as generalization measures for words practiced in peer tutoring as well as for their reading fluency rate.

Another option would be to structure studies with the preceding procedures to include cross-aged rather than peer tutors. More competent tutors might have a more positive effect on students' sight word acquisition as well as their fluency and comprehension. Thus, future research could combine the effects of peer tutoring with younger and older student population in the area of reading and sight word acquisition.

Finally, it is also important to investigate the longitudinal effects of peer tutoring on urban students. Very few researches have focused on this area. Therefore, a further validation of the effects of peer-mediated intervention in the long-term is necessary.
Summary

This study investigated the effects of total class peer tutoring on the acquisition of sight words, maintenance, reading fluency and comprehension of at-risk students for reading failure. Targeted for data collection were six African – American students, four females and two males. One student was in the third grade and the other five were in the second grade. Two students were receiving special education services. The peer tutoring was conducted three times per week for 25-30 minutes and it lasted for 20 weeks. Treatment was staggered that the intervention ranged from 20 to 17 weeks for the tutoring pairs. At the sixteenth week, all the students in the class were engaged in peer tutoring.

Results of the study showed that urban students can be effective tutors and teach each other basic sight words. All students increased the number of words learned over baseline. This finding indicated that students can learn when higher expectations are set for them. All except one student increased the mean percentage of sight word acquisition over baseline. In this exception, a ceiling effect was evident in that this student knew nearly all the words presented by the teacher during baseline. For intervention, the researchers increased the number and difficulty of the words for this student.

Students increased their reading fluency over baseline levels. Greater gains were observed in the constructed paragraphs, where students could read sight words practiced during peer tutoring. In other words, students generalized the words in context. Since none of the students reached the level of fluency benchmarked for their grades, additional strategies are needed to achieve this goal.
Results in reading comprehension indicated gains over baseline for all students. Greater gains were noticed in the constructed paragraphs rather than in the DIBELS passages. This most likely resulted from using the peer tutoring words in the constructed paragraphs.

Maintenance data showed that all except one of the students retained at least 89% of the words taught during peer tutoring. The lower retention for the one student was due to excessive absences from the tutoring.

This study supports findings from other studies in regards to the positive effects of peer tutoring on urban student population. That is, total class peer tutoring is an effective class-based intervention and an inclusive strategy that can facilitate the learning of all students with and without disabilities. In addition to verifying previous findings, this study contributed to the research in this area in the following ways:

1. peer tutoring of sight words can lead to fluent reading of connected text containing tutored words,
2. peer tutoring of sight words can lead to comprehension of connected text containing tutored words,
3. peer tutoring of sight words failed to result in substantial gains of fluent reading of connected text containing untaught words,
4. peer tutoring of sight words proved only modest gains in comprehension of connected text containing untaught words.
LIST OF REFERENCES


Heron, T. E., & Heward, W. L. (2000). *Total tutoring for special and general educators [Instructor’s Manual].* Columbus, OH: The Ohio State University Special Education Program.


APPENDIX A

PARENT LETTER FOR PARTICIPATION
Dear Parent:

I am a professor in the college of education at The Ohio State University. My research assistant, Ya-yu Lo, and I will be conducting a research project in your child's school. We wish to see if intensive periods of reading instruction will increase reading performance. Before instruction, we will use standardized reading tests to assess specific reading skills. This will help us to select the most appropriate reading strategy such as (1) peer tutoring, where students work in pairs to practice the academic skills, and/or (2) timed and repeated readings, where students reread passages to improve their reading fluency and comprehension. Your child will be working with the researcher, the classroom teacher, and their peers in the classroom three times a week for 30 minutes each time.

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 group 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 word attack skills, number of sight words, reading rate, and reading comprehension. 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 ask your child in the form of interview to express how he/she feels about the reading intervention. 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

Gwendolyn Cartledge, Ph.D.
Professor
APPENDIX B

PARENT CONSENT FOR PARTICIPATION
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: ___________ (Participant)

Signed: Gwendolyn Cartledge /me
(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 C

TEACHER LETTER FOR PARTICIPATION
October 1, 2003

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 apply in your classroom specific strategies related to effective instruction and the behavior management of your students.

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 will help you design the materials, where needed, and assist you in the classroom application. The project staff will visit you weekly, as needed, to assist with the implementation and to consult with you about the effects. We expect that the consultations will take about one hour weekly. The project staff will also visit your classroom room several times a week (depending on the specific strategy implemented) to collect data on student academic and social behaviors.

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 your classroom. 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 D

TEACHER CONSENT FOR PARTICIPATION
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 investigator has 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 participation.

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

I consent to the use of videotapes and photographs. I understand that the tapes will be used for demonstration of classroom teaching practices for this project. I also consent to the use of the following information from my students' academic records: test scores on the academic materials and other means of academic 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 or I have had it read to me. I sign it freely and voluntarily. A copy has been given to me.

Print the name of the participant: __________________________________________

Date: ___________________________ Signed: ___________________________

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

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

Witness: ___________________________ (When required)
APPENDIX E

DIBELS™ PASSAGE OF 2ND GRADE

FOR READING FLUENCY
Twins

Six years ago my family grew from two people to four people in one day. That was the day my sister and I were born. That was the day Mom and Dad had to start buying two of everything. My mom and dad say we were much more than twice the work of one baby. They also said we gave back more than twice as much love and fun.

We look just alike because we are identical twins, but we don’t act just the same. My sister likes peas and beans and I hate them. I like grape juice and she likes apple juice. She likes to read. I would rather climb a tree than read a book.

Mom and Dad are the only ones who can tell us apart when we dress the same. They know the secret. I have a mole on my ear and my sister doesn’t. We look so much alike that we can even fool Grandma and Grandpa.

It’s nice to be a twin sometimes. We always have someone our own age who will share our secrets. Sometimes we don’t want to share everything. Sometimes it is nice to have my mom or my toys all to myself. Dad says we aren’t really that much alike because no person is exactly like anyone else.
APPENDIX F

DIBELS™ PASSAGE OF 2ND GRADE FOR READING COMPREHENSION
Twins

Six years ago my family grew from two people to four people in one day. That was the day my sister and I were born. That was the day Mom and Dad had to start buying two of everything. My mom and dad say we were much more than twice the work of one baby. They also said we gave back more than twice as much love and fun.

We look just alike because we are identical twins, but we don’t act just the same. My sister likes peas and beans and I hate them. I like grape juice she likes apple juice. She likes read. I would rather climb a tree than read a book.

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It’s nice to be a twin sometimes. We always have someone our own age who will share our secrets. Sometimes we don’t want to share everything. Sometimes it is nice to have my mom or my toys all to myself. Dad says we aren’t really that much alike because no person is exactly like anyone else.
APPENDIX G

DIBELS™ PASSAGE OF 3RD GRADE

FOR READING FLUENCY
My Dad Goes to School

My dad goes to school just like me. My sister is in second grade and I am in fourth grade. My dad isn’t in a grade. He goes to school at the community college where he is studying computer science. Every morning he walks with my sister and me to the bus stop. We all ride the same bus to my school and then he says goodbye to us.

We all ride the bus home in the afternoon, but at different times. My sister and I get home first. As soon as Dad arrives, the three of us sit down at the kitchen table and do our homework together. I think Dad has the most homework. After he gets his homework done, my dad goes to his job and works until midnight. When he gets home it’s very late and the rest of the family is sound asleep.

Dad says he is studying hard because he wants a better job. He says he’s looking forward to being home in the evenings and relaxing with all of us. In another year he will finish his degree and he can find a better job.

I admire my dad. Sometimes when I’m not in the mood to do my homework he pats me on the shoulder and says, “You’re doing very well. You keep it up and you won’t have to go to school when you’re an old guy like me.”
APPENDIX H

DIBELS™ PASSAGE OF 3RD GRADE

FOR READING COMPREHENSION
My Dad Goes to School

My dad goes to school just like me. My sister is in second grade and I am in fourth grade. My dad isn’t in a grade. He goes to school at the community college where he is studying computer science. Every morning he walks with my sister and me to the bus stop. We all ride the same bus to my school and then he says goodbye to us.

We all ride the bus home in the afternoon, but at different times. My sister ___ I get home first. As soon as Dad arrives, the three of us sit down at ___ kitchen table and do our homework together. I think Dad has the most homework. After he gets his ____ done, my dad goes to his job and works until midnight. When he gets home it’s very late and the rest ___ the family is sound asleep.

Dad says he ___ studying hard because he wants a better job. He says he’s looking forward to being home in the evenings and relaxing with all of us. In another year he will finish his degree and he can find a better job.

I admire my dad. Sometimes when I’m not in the mood to do my homework he pats me on the shoulder and says, “You’re doing very well. You keep it up and you won’t have to go to school when you’re an old guy like me.”
APPENDIX I

EXPERIMENTER CONSTRUCTED PASSAGES
Passage 1

My name is Tom. I have one sister and two brothers. My sister is very pretty and every boy in school likes her! My brothers like to skate and jump with the skateboard all the time. I like it too! But my brothers do not let me skate because they say I may crash somewhere. One day they made me sit while they played with the skateboard. That wasn't nice at all.

I love my sister because she is a very kind girl. She enjoys playing with me! Sometimes when our brothers are not home we take the skateboard and have fun with it. I make her sit on the board and I push her because I am a strong boy. Sometimes she tries to go fast but she crashes on the wall! Then we quit!

Passage 2

Old people and little children love sports. They get ready to watch their favorite team play. They jump into their car and drive outside the city. They don't want to be late for the new game. When people are at the game, they stand in line. They wait to go in. Small children like to joke with each other.

Everyone looks at the big clock when the game starts. All team players come out of the gym. One time a player got hurt when another player kicked him on the leg. Nobody knew how this happened. It started to rain and the game was stopped. Nobody won that day!
Passage 3

My dad has an old black truck. A lot of times dad gives us a ride with his old truck. We really love to sit at the back of it and drink our soda. We stop at the town and everybody looks at our truck. Mom starts writing down a list of old junk. Then she tells dad to put the junk on the truck. Sometimes when there is a lot of junk, the truck goes very slow. It becomes slower than other times.

One time it rained and I saw the truck float. Dad had to pick up the phone to call the mechanic. The mechanic told dad that our truck had a lot of problems. Dad shook his head. We all saw that he was sad. Then mom put the truck on sale. She did the right thing. That’s why we don’t have our truck here anymore.

Passage 4

My classroom is an important place. I can read and write. I love getting many stars when I am done with my work. Mrs. Medary usually gives me a big star when I show her my own work. I put all my stars in a small book. I get to carry it everywhere. If any student doesn’t finish his work, then he has to stay in class until he is done.

One day the teacher found that two students didn’t turn in their work. Mrs. Medary didn’t accept this! She stood up and asked: “What’s the reason you didn’t do it?” They said: “We brought it but it’s not finished. We weren’t sure what to do.” Some kids wanted to laugh but the teacher looked at them. “That’s enough!” she told them.
Passage 5

I like playing in the snow. I put on my winter clothes and I go outside to meet my friends. Every kid likes to run up and down against the snow. Sometimes we watch children falling down. Then they laugh at themselves. These children aren’t afraid of the cold. Other kids take a stick and draw on the snow!

When it is cold, we don’t usually see any bugs. One time while we were playing, we saw a bug. “What a small bug! We won’t get it,” my friend said. “Yes! It’s so simple,” I said, “Watch me.” I caught the little bug with a snap. It wasn’t hard for me. After that, I decided I wouldn’t like to become a police man anymore. “I shall be a bug hunter!” I told my other friends. I found my whole new idea cool!
Peer Tutoring Questionnaire

Child’s Name: ........................................

Parent’s Name: ........................................ Date:.............

Dear Parent/Guardian

This is a questionnaire that we would like you to complete. We would like to know your opinion on how the **Peer Tutoring**, in which your child participated throughout this school year, helped him/her.

Please circle ONE number from 1 to 4 that best represents your opinion on each statement.

- **Number 1** = AGREE STRONGLY
- **Number 2** = AGREE
- **Number 3** = DISAGREE
- **Number 4** = DISAGREE STRONGLY

Thank you for your time!

Sincerely

*The project team of Peer Tutoring*
<table>
<thead>
<tr>
<th>Questions</th>
<th>Agree Strongly 1</th>
<th>Agree 2</th>
<th>Disagree 3</th>
<th>Disagree Strongly 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Learning sight words is an important skill for my child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I feel that peer tutoring helped my child to become a better reader.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. My child was able to explain the program to me in a positive way.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I feel that my child enjoyed the peer tutoring.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I would like my child to continue participating in the peer tutoring program at school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I feel that peer tutoring is important and beneficial because it helps my child to learn more words.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I am glad my child participated in the peer tutoring program.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Please use the space below to write any other comments about your child's participation in the Peer Tutoring program.

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174
APPENDIX K

TEACHER SATISFACTION QUESTIONNAIRE
**Peer Tutoring Questionnaire**

**Teacher's Name:**........................................  **Date:**.............

*Dear Teacher*

The purpose of this questionnaire is to gather information about your opinion on the Peer Tutoring program. We would like to know how and to what degree the Peer Tutoring program has helped your students in their academic and social performance.

The questionnaire is composed of 12 statements and 2 open-ended questions. Please circle ONE number from 1 to 4 that best represents your opinion for questions 1 to 12.

Number 1 = AGREE STRONGLY
Number 2 = AGREE
Number 3 = DISAGREE
Number 4 = DISAGREE STRONGLY

Thank you very much for your time and comments!

Sincerely

*LeiKo Kourea*
<table>
<thead>
<tr>
<th></th>
<th>Questions</th>
<th>Agree Strongly 1</th>
<th>Agree 2</th>
<th>Disagree 3</th>
<th>Disagree Strongly 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sight word recognition is a critical skill for my students to acquire for their future life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Peer tutoring improved my students' sight word recognition skill.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Peer tutoring improved my students' reading fluency.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Peer tutoring improved my students' comprehension skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Peer Tutoring has benefited my students' overall reading skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>The Peer tutoring program is easy to implement in my classroom.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>The amount of time given for Peer Tutoring was appropriate and adequate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>The procedures of Peer tutoring helped students to actively engage in their learning.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>The reward system of the program helped to promote my students' academic and social performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>I would recommend this program to other teachers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>I enjoyed participating in this research project.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>I am planning to implement the program in my class next year.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
13. If you are to use the peer tutoring program again, which component(s) of the program would you modify to make it more appropriate for your students?

..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
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14. Please feel free to share additional comments and thoughts about the Peer Tutoring program.

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..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
APPENDIX L

STUDENT SATISFACTION QUESTIONNAIRE
Student’s name: .......................................................................... Date: .......... 

Instruction: “I’d like to ask you some questions about peer tutoring. This is not a test and you can tell me how you feel. When I ask you a question, I’d like you to give me your answer by pointing to one of these faces.”

<table>
<thead>
<tr>
<th>Questions</th>
<th>Like very much</th>
<th>Didn’t feel anything</th>
<th>Didn’t like</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do you feel about peer tutoring?</td>
<td></td>
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<tr>
<td>2. How do you like being a tutor (i.e. teacher)?</td>
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<tr>
<td>3. How do you like being a tutee (i.e. student)?</td>
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<tr>
<td>4. What do you think about practicing the words during peer tutoring?</td>
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<tr>
<td>5. How do you like coloring boxes on your chart?</td>
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<tr>
<td>6. What do you think of the prizes?</td>
<td></td>
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</tr>
</tbody>
</table>

“Now I’m going to ask you few more questions. Tell me how you feel.”

<table>
<thead>
<tr>
<th>Questions</th>
<th>Like very much</th>
<th>Didn’t feel anything</th>
<th>Didn’t like</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Which part of peer tutoring did you like the best?</td>
<td></td>
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</tr>
<tr>
<td>8. Which part of peer tutoring didn’t you like?</td>
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<tr>
<td>9. Did you learn more words when you were the tutor or when you were the student?</td>
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<tr>
<td>10. Would you rather have peer tutoring or be in a small group of kids working with the teacher to learn words?</td>
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<tr>
<td>11. If you were to change anything about peer tutoring, what would you change?</td>
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</tr>
<tr>
<td>12. Is there anything else you would like to tell me about peer tutoring?</td>
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</table>
APPENDIX M

PROCEDURAL INTEGRITY CHECKLIST FOR

TUTOR BEHAVIORS
**Peer Tutoring**

**Assessment Integrity Checklist**

**Directions:** As the observer, please observe setup and procedure of the peer tutoring, check researcher's accuracy in having students do the following procedures. Decide if students do, or do not follow the procedures or if any procedure is not applicable.

<table>
<thead>
<tr>
<th>Date: ..................................</th>
<th>Observer: ..................................</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor's name: .........................</td>
<td>Tutee's Name: ..............................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</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>
<td></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><strong>Student participates in Tutor Huddle.</strong></td>
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</tr>
<tr>
<td>3a.</td>
<td>Student sits with the Tutor Huddle members at assigned area.</td>
<td></td>
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</tr>
<tr>
<td>3b.</td>
<td>Student takes turns reading words to members.</td>
<td></td>
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</tr>
<tr>
<td>3c.</td>
<td>Student repeats the word to members when prompted.</td>
<td></td>
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<tr>
<td>4.</td>
<td><strong>Student participates during practice phase.</strong></td>
<td></td>
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</tr>
<tr>
<td>4a.</td>
<td>Student displays the sight word flashcards with front facing partner.</td>
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<tr>
<td>4b.</td>
<td>Student provides praise when partner responded correctly.</td>
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<tr>
<td>4c.</td>
<td>Student provides corrective feedback when partner responded incorrectly.</td>
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<tr>
<td>5.</td>
<td><strong>Student participates during testing.</strong></td>
<td></td>
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</tr>
<tr>
<td>5a.</td>
<td>Student displays sight word flashcard with front facing partner.</td>
<td></td>
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</tr>
<tr>
<td>5b.</td>
<td>Student provides no prompting during testing.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5c.</td>
<td>Student places correct responses on &quot;😊&quot; and incorrect responses on &quot;X&quot;.</td>
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<tr>
<td>5d.</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><strong>Student completes charting the back of each card.</strong></td>
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</tr>
<tr>
<td>6a.</td>
<td>Student draws a circle in the square for correct responses.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6b.</td>
<td>Student marks &quot;X&quot; for incorrect responses.</td>
<td></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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<tr>
<td>8.</td>
<td>Student returns folder.</td>
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APPENDIX N

PROCEDURAL INTEGRITY CHECKLIST FOR

READING FLUENCY AND COMPREHENSION
DIBELS™ Oral Reading Fluency
Assessment Integrity Checklist

Directions: As the observer, please observe setup and directions, time and score the test with the examiner, check examiner's accuracy in following procedures, and decide if examiner passes or needs more practice.

<table>
<thead>
<tr>
<th>Fine Needs Practice</th>
<th>√ box to indicate Fine or Needs Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Performs standardized directions verbatim:</td>
</tr>
<tr>
<td></td>
<td><em>Please read this out loud. If you get stuck, I will tell you the word so you can keep reading. When I say, “stop,” I may ask you to tell me about what you read, so do your best reading. Start here. Begin.</em></td>
</tr>
<tr>
<td></td>
<td>2. Holds clipboard and stopwatch so child cannot see what (s)he records.</td>
</tr>
<tr>
<td></td>
<td>3. Starts stopwatch after child says the first word of the passage.</td>
</tr>
<tr>
<td></td>
<td>4. For first word, waits 3 seconds for child to read the word. After 3 seconds, says the correct word, starts the stopwatch, and scores the first word as incorrect.</td>
</tr>
<tr>
<td></td>
<td>5. For all words, if child hesitates or struggles with a word for 3 seconds, says the correct word and scores the word as incorrect.</td>
</tr>
<tr>
<td></td>
<td>6. Puts a slash through words read incorrectly.</td>
</tr>
<tr>
<td></td>
<td>7. Follows discontinue rule if child does not get any words correct in first five words.</td>
</tr>
<tr>
<td></td>
<td>8. At the end of 1 minute, places a bracket (e.g.,[ ) after the last word provided and says “Stop.”</td>
</tr>
<tr>
<td></td>
<td>9. Records the number of correct words.</td>
</tr>
</tbody>
</table>

**Reading Comprehension**

<table>
<thead>
<tr>
<th>Fine Needs Practice</th>
<th>√ box to indicate Fine or Needs Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10. Performs retell directions verbatim:</td>
</tr>
<tr>
<td></td>
<td><em>Please tell me one word that goes in each blank space. Begin.</em></td>
</tr>
<tr>
<td></td>
<td>11. If the student says more than one word, say: “Tell me just one word”.</td>
</tr>
<tr>
<td></td>
<td>12. If the student says a similar missing word, say: “Try to tell me another word”.</td>
</tr>
<tr>
<td></td>
<td>13. If the student does not say anything for 5 seconds, say: “Move on to the next sentence”.</td>
</tr>
</tbody>
</table>
|                     | 14. At the end of five words, complete data sheet and say: “Thank you”.

184
APPENDIX O
DATASHEET
# Week 14: Peer Tutoring

## Erin

<table>
<thead>
<tr>
<th>#</th>
<th>Teacher's Words</th>
<th>PR-T</th>
<th>3/8/04</th>
<th>3/9/04</th>
<th>3/10/04</th>
<th>WPM</th>
<th>Comprehension</th>
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## Steve

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## Irena

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<th>PR-T</th>
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APPENDIX P

LESSON PLAN TRAINING SCRIPT
Lesson Plan for Total Class PT

Date: Friday, 23rd of January 2004
Time: 35 minutes

Objectives
Students should be able to:
1. know PT’s terminology: tutor, tutee, tutor huddle, practicing, testing, charting
2. get familiar with the PT procedure:
   a. Content of the folder
   b. Tutor Huddle
   c. Practicing
   d. Testing
   e. Charting
3. know their partner
4. know their assigned area for (1) Tutor Huddle (2) Practicing

Materials: PT folders with 5 cards in each one, crayons, timer, 4 signs with the letters A, B, C, D

Groups:
- During Tutor Huddle: 2 groups of 4 and 2 groups of 3 students.
- During Practicing, Testing and Charting: 7 pairs of 2 students.

Methodology:
1. Introduce to students Peer Tutoring by: 3 min.
   - Explaining to students:
     ➢ Children can be good teachers.
     ➢ When you teach just one person at a time, you are called a tutor and the person who learns the words is the tutee.
     ➢ Each of you will be learning how to teach one another 10 words each week.
     ➢ Everyone will have the chance to be a tutor.
     ➢ Showing folder and briefly describe function of parts (“GO” pocket, “STOP” pocket, Star Cards, Progress Chart)
   Explaining that the class will soon be practicing how to be good tutors.
2. Perform Peer Tutoring Procedure by: 7 min
   - Modeling the skill (Teacher - Researcher as a pair).
   - Getting folders (take out Star Card, exchange folders,
- Take out the words).
- Starting Tutor Huddle: Teacher goes to one group of students and practices her words. Researcher goes to another group of students and practices the words for (1 min).
- After time is over, teacher and researcher demonstrate to students how to practice the words with each other (What word?/ Good Job!/ Try again) in front of the class (1 min).
- Then testing begins. (1 min.)
- Finishing up by showing to students how to chart and how to mark the correct/incorrect words.
- **Role Playing** (Student-Teacher as a pair or 2 students as a pair demonstrate the procedure in front of the whole class) (1 min).
- Get folders (take out Star Card, exchange folders, take out the words).
- Start Tutor Huddle: Teacher/Student goes to one group of students and practices her words. Student goes to another group of students and practices the words for (1 min).
- After time is over, teacher/student and student practice the words with each other (What word?/ Good Job!/ Try again) in front of the class (1 min).
- Then testing begins. (1 min.)

### Time Table

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 3.   | Teacher gives instructions on:  
|      | - Pairing (specify the pairs)  
|      | - Assigned Areas for every pair |
| 4.   | Students pair off and go to their assigned area. |
| 5.   | Students get their folders with their name on  
|      | - get star card out from their folder  
|      | - exchange folder with their partner.  
|      | - get cards out from the “GO” pocket  
|      | - in front of their folder they have a letter A or B or C or D  
|      | - they go to their assigned area that has the same letter with the one on their folder |
| 6.   | Total Class Peer Tutoring begins (see attached procedure) |
| 7.   | Training ends:  
|      | - Teacher announces peer tutoring ‘s ending  
|      | - Teacher praises students what a wonderful job they did  
|      | - Students return their folder to the teacher and return to their seats. |

1 min | 2 min | 1 min | 2 min | 15 min | 2 min |
APPENDIX Q

“GOOD NEWS REPORT”
Dear Parent

Your child, Erin, participates in a peer tutoring reading project at Hubbard Elementary School. We are pleased to inform you that this week (March 1st to 3rd) Erin successfully learned 10 of the 10 new words and taught her partner ten new words! She has worked hard and has cooperated with her partner.

We are very pleased with her performance!

Sincerely

Project Team, Mrs Medary and Mrs Stemen
APPENDIX R

HIGH FREQUENCY FLASHCARDS
truck

(Front Side of Flashcard)

truck

(Back Side of Flashcard)
APPENDIX S

FRONT SIDE OF PEER TUTORING FOLDER:

TESTING PAGE
APPENDIX T

INSIDE LEFT PAGE OF PEER TUTORING FOLDER:

PROGRESS RAW CHART
You made it!

Congratulations

GREAT!

GOOD GAME!

Go on!

You can DO it!

SUPER JOB!

Start →
APPENDIX U

INSIDE RIGHT PAGE OF PEER TUTORING FOLDER:

“GO” AND “STOP” POCKETS
APPENDIX V

BACK SIDE OF PEER TUTORING FOLDER:

“STARCARD” POCKET
APPENDIX W

TEACHER SIGHT WORD LIST
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<th>Word 3</th>
<th>Word 4</th>
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<td>I</td>
<td>will</td>
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<td>school</td>
<td>who</td>
<td>off</td>
<td>they</td>
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<tr>
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<td>now</td>
<td>then</td>
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<tr>
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<td>with</td>
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<tr>
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</table>
APPENDIX X

COLUMBUS READING GUIDE CURRICULUM LIST

AND

DOLCH BASIC SIGHT WORD LIST
**Core List of Words**

Students need to develop a growing core of high frequency words that become part of their reading and writing vocabulary. These words are used so often that it is essential for students to recognize them on sight. Having many words that are quickly recognized helps to move the reading and writing along so that problem solving is not necessary on each word. Fluency is supported by a large number of easily recognized words. Students must be instructed to search for links between known and new words. This grade level core list of words does not represent the full repertoire of words a student needs to master. It is simply a beginning resource for further word instruction.

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</table>

**Students must demonstrate knowledge of the current and previous core lists of words.**

206
Basic Dolch sight words.

Pre-primer
a, and, away, big, blue, can, come, down, find, for, funny, go, help, here, I, in, is, it, jump, little, look, make, me, my, not, one, play, red, run, said, see, the, three, to, two, up, we, where, yellow, you

Primer
all, am, are, at, ate, be, black, brown, but, came, did, do, eat, four, get, good, have, he, into, like, must, new, no, now, on, our, out, please, pretty, ran, ride, saw, say, she, so, soon, that, there, they, this, too, under, want, was, well, went, what, white, who, will, with, yes

1st Grade
after, again, an, any, as, ask, by, could, every, fly, from, give, giving, had, has, her, him, his, how, just, know, let, live, may, of, old, once, open, over, put, round, some, stop, take, thank, them, then, think, walk, were, when

2nd Grade
always, around, because, been, before, best, both, buy, call, cold, does, don't, fast, first, five, found, gave, goes, green, its, made, many, off, or, pull, read, right, sing, sit, sleep, tell, their, these, those, upon, us, use, very, wash, which, why, wish, work, would, write, your

3rd Grade
about, better, bring, carry, clean, cut, done, draw, drink, eight, fall, far, full, got, grow, hold, hot, hurt, if, keep, kind, laugh, light, long, much, myself, never, only, own, pick, seven, shall, show, six, small, start, ten, today, together, try, warm

Nouns
apple, baby, back, ball, bear, bed, bell, bird, birthday, boat, box, boy, bread, brother, cake, car, cat, chair, chicken, children, Christmas, coat, corn, cow, day, dog, doll, door, duck, egg, eye, farm, farmer, father, feet, fire, fish, floor, flower, game, garden, girl, good-bye, grass, ground, hand, head, hill, home, horse, house, kitty, leg, letter, man, men, milk, money, morning, mother, name, nest, night, paper, party, picture, pig, rabbit, rain, ring, robin, Santa Claus, school, seed, sheep, shoe, sister, snow, song, squirrel, stick, street, sun, table, thing, time, top, toy, tree, watch, water, way, wind, window, wood
APPENDIX Y

“GAUGHT BEING GOOD” TOKENS
<table>
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<th>I was CAUGHT BEING GOOD!</th>
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