EFFECTS OF PEER-MEDIATED DIRECT INSTRUCTION AND REPEATED READING ON THE READING SKILLS OF INCARCERATED JUVENILES WITH DISABILITIES

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ABSTRACT

This study investigated the effects of peer-mediated Direct Instruction (DI) on the oral reading fluency and comprehension of older struggling readers who reside at a facility for juvenile delinquents. Eight students, whose ages ranged from 15 to 17 years old, participated in this study. All participants were identified as having a disability. Students were designated as a tutor or tutee based on pre-intervention measures. Tutors used the Corrective Reading (Englemann, Hanner, & Johnson, 1999) program and the repeated oral reading strategy for their tutees (Therrien & Kubina, 2006).

The effectiveness of the peer-mediated Corrective Reading DI and repeated reading was primarily determined by comparing the fluency data obtained, from 1-minute timings, prior to the intervention with fluency data obtained during the intervention (i.e., comparing baseline with the experimental conditions). Students receiving peer-mediated instruction all made gains in their levels of oral reading fluency.

Comparing pre-intervention reading comprehension probes data with reading comprehension probes data obtained during the intervention was a secondary measure to determine the effectiveness of this intervention. Across all tutees mixed results were obtained.

Finally, pretest and posttest data from standardized tests were used to determine the effectiveness of this intervention. Pretest and posttest results indicated that
both students who taught and students who received instruction made gains in their reading achievement.

Overall, results obtained from this study evidence the effectiveness of peer-mediated DI and the repeated reading strategy. Additionally, peer-mediated instruction is an efficient instructional method for incarcerated youth with disabilities. Finally for this highly mobile at-risk population, DI is an appropriate teaching method because it can have an expedient effect on incarcerated older struggling readers’ reading skills.
Dedicated to my mother and father
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CHAPTER 1

INTRODUCTION

The ability to read effectively is essential for both school and lifelong success. Reading remains a gateway to all other academic areas. Children who do not learn to read well are more likely to have poor grades, dropout, and engage in problem behaviors (Archer, Gleason, Vachon, 2003; Torgeson et al., 2006; Wehby, Falk, Barton-Arwood, Lane, & Colley, 2003). The unfortunate truth is that older struggling readers and nonreaders are disproportionally represented in the delinquent population (Foley, 2001). Brunner (1993) found that the reading levels of incarcerated juveniles typically fall below that of their same-age peers.

The poor reading ability of children is not just a predictor of the increased likelihood of problem behavior and incarceration, but for incarcerated juveniles it is also a critical skill to assist in predicting the likelihood of recidivism (Malmgren & Leone, 2000). For juveniles placed under state supervision, it is highly desirable that they successfully complete all mandated programs, be discharged, and not be reincarcerated. Older struggling readers who are released from residential facilities are faced with the
daunting task of trying to appropriately reconnect with a society for which they are ill prepared. Providing incarcerated adolescents with reading problems an appropriate education that focuses on systematic literacy instruction is one of the most effective methods for successfully transitioning them back into the community (Leone, Krezmien, Mason, & Meisel, 2005).

Facilities housing juvenile delinquents are charged with providing educational services while these adolescents are under their supervision (No Child Left Behind Act, 2004). Currently, there are about 100,000 juveniles in custody (Snyder & Sickmund, 2006). Among those juveniles are a significant number of individuals with special needs. Individuals with mild disabilities often exhibit high rates of reading failure and are in need of intensive reading interventions (Wehby, Falk, Barton-Arwood, Lane, & Colley, 2003). Due to increased awareness and better methods for identifying individuals with disabilities, the number of juveniles needing specialized services has been on the rise. An estimated 33.4% of juveniles under state supervision have been identified as having a disability (Quinn, Rutherford, Leone, Osher, & Poirer, 2005). Severe disabilities such as other health impairments (OHI) and multiple disabilities (MD) only account for 3.2% of all juveniles identified as having a disability (2.9% and 0.8% respectively). The vast majority have mild disabilities. In fact, youth classified as having emotional disturbance (ED), specific learning disability (SLD), or mental retardation (MR) make up 96% of all incarcerated youth with disabilities (47.7%, 38.6%, and 9.7% respectively) (Quinn et al.).

As mentioned earlier, the rate of incarcerated juveniles with disabilities is disproportionate to that of their same-age peers. A major obstacle faced by correctional facilities is providing the services needed for juveniles with disabilities because there is
an inverse relationship between the population of juveniles with disabilities and special educators (Leone et al., 2005). That is, there are fewer special educators than needed based on the percentage of students with disabilities. The difficulty in providing high quality special education services is further hindered by the national shortage of special education teachers. The challenge in attracting special educators to work in correctional facilities is further compounded when considering the surplus of jobs in traditional schools for special educators. Unfortunately, ensuring that an appropriate education and related services are provided for confined juveniles continues to be an issue that rarely receives enough attention (Leone et al.).

How do educators provide effective instruction for incarcerated youth who are struggling readers? When implementing reading interventions for incarcerated youth, researchers have experienced success. Two promising instructional strategies for improving the reading performances of incarcerated struggling readers are peer tutoring and Direct Instruction (DI) (Allen-DeBoer, Malmgreen, & Glass 2006; Drakeford, 2002; Malmgren & Leone, 2000; Steurer, 2000). Nonetheless, there continues to be an extreme shortage of empirical research conducted within facilities for juvenile delinquents.

As mentioned, DI has been an effective method for reading instruction for incarcerated students with and without disabilities (Foley, 2001). Additionally, because DI provides a script for the instructor, competent students can be trained to provide evidence-based instruction for struggling peers (Frazier-Trotman, 2001; Marchand-Martella, Martella, Bettis, & Blakely, 2004).

Yawn (2008) trained gifted students to tutor older struggling peers, in an inner city middle school, using DI materials. In the pilot study, tutors provided instruction for
their respective tutees using the Corrective Reading program and assessing its effects on their tutees’ oral reading fluency. Results showed that all the tutors were able to use the DI materials with fidelity and that all the tutees made gains in oral reading fluency.

Purpose of Study

The purpose of this study was to examine the effects of peer-mediated Direct Instruction on the oral reading fluency and comprehension of older struggling readers who reside at a facility for juvenile delinquents. Tutors used the Corrective Reading (Englemann, Hanner, & Johnson, 1999) program to explicitly teach decoding. Additionally, tutors implemented the repeated oral reading strategy for their tutees (Therrien & Kubina, 2006).

Previous research has indicated that explicit instruction in decoding and fluency building exercises such as repeated reading can improve the reading skills of students (National Reading Panel, 2000). Furthermore, peer tutoring is an evidenced-based strategy that has been found to improve the academic skills of diverse learners and provide teachers with a highly efficient instructional method for enhancing student learning (Harris, Marchand-Martella, & Martella, 2000).

Research Questions

1. What are the effects of peer-mediated Corrective Reading Direct Instruction (DI) on older struggling readers’ oral reading fluency?

2. What are the effects of peer-mediated Corrective Reading DI and guided repeated oral reading on older struggling readers’ oral reading fluency?
3. Will the older struggling readers’ levels of oral reading fluency maintain after the intervention?

4. What are the effects of peer-mediated Corrective Reading DI on older struggling readers’ reading comprehension?

5. What are the effects of peer-mediated Corrective Reading DI and guided repeated oral reading on older struggling readers’ reading comprehension?

6. Will the older struggling readers’ levels of reading comprehension maintain after the intervention?

7. What are the effects of the intervention on older struggling readers’ reading achievement?

8. What are the effects of peer-mediated Corrective Reading DI on the reading achievement of the tutors as measured by standardized tests?

9. What are the effects of the intervention on older struggling readers’ attitude toward reading as measured by a reading attitudinal Likert Scale?

10. What are the opinions of the student participants about the intervention?

11. What is the opinion of the classroom teacher about the intervention?
This chapter will present literature pertinent to incarcerated youth. First, general data about incarcerated youth will be presented and then prevalence data about incarcerated youth with disabilities will be presented. Next, components for effectively preparing corrections’ educators will be discussed. Finally, characteristics of incarcerated older struggling readers and evidence-based instructional practices to remediate their deficient reading skills will be discussed.

Incarcerated Youth with Disabilities
Increasingly, correctional facilities have become environments where at some point in time a significant number of youth with special needs receive educational services (Quinn et al., 2005). Despite the increasing population of incarcerated individuals with disabilities, ensuring that an appropriate education and related services are provided for these students continues to be an issue that rarely receives enough attention. Typically, issues such as high stakes testing, teacher shortage, and educational funding concerning only students in public schools take precedence.

Furthermore, a longstanding lack of a uniform philosophy about the purpose of juvenile correctional facilities (i.e., punishment or rehabilitation) has diverted
attention away from how to actually educate those who are confined (Leone et al., 2005).

The first juvenile institution was opened for females in 1824 (Lawrence, 1998). Since then the population, demographics, and number of juvenile institutions has changed dramatically. Currently, the United States has 2,861 juvenile facilities holding more than 109,000 youth (Snyder & Sickmund, 2006). Although the female population has been steadily increasing, males account for the majority of juveniles in custody (15% and 85% respectively) (Snyder & Sickmund). Incarcerated youth are disproportionately male, poor, minority, and with significant learning or behavioral problems (Quinn et al., 2005). Indeed, because of the highly diverse juvenile population in corrections a singular educational approach can have a deleterious effect on their maturation.

**Prevalence and Disproportionality**

The overrepresentation of youth with disabilities in correctional facilities is alarming. Morgan (1979) was one of the first to investigate prevalence rates of youth with disabilities in correctional facilities and found that 42% of youth offenders were identified as disabled. Since his finding, prevalence data has been periodically reported. There is no agreed upon prevalence rate for youth with disabilities in correctional facilities and estimates vary widely. Much of the literature reviewed has prevalence rates ranging from 12% to 75% (Bullock, & McArthur, 1994; Foley, 2001; Leone et al., 2005; Leone, Meisel, & Drakeford, 2002; Leone, Rutherford, & Nelson, 1991; Quinn et al., 2005). In a national survey recently conducted by Quinn and colleagues, they found that on average 33.4% of youth residing in correctional facilities has a disability. In contrast, 12.1% of students enrolled in public schools have a disability (U.S. Department of
Therefore, within correctional facilities the population of youth with disabilities is two to three times that of the general public school population.

**Problems With Prevalence Data**

Prevalence data about youth with disabilities in corrections are not an entirely accurate. In fact, available prevalence data underestimate the number of youth with disabilities residing in correctional facilities (Quinn et al., 2005). There are multiple reasons why there are discrepancies in prevalence data. Several reasons include (a) inconsistency in defining disabling conditions, (b) insufficient qualifications and resources of those conducting assessments, (c) inadequate methods and types of testing in screening and diagnosis, (d) lack of prior school records, (e) variation from state to state in age qualifications for receiving services, and (f) administrative policies that place individuals in separate facilities according to their identified disability (Morgan, 1979; Rutherford, Griller-Clark, & Anderson, 2001). To clarify the last point, many states place youth offenders identified with disabilities such as MR and ED in mental health facilities rather than correctional facilities. Although, issues concerning the accuracy of prevalence data persist, the literature indicates that there is a significant proportion of incarcerated youth with special needs requiring specialized services.

**Theories About the Relationship Between Disability and Delinquency**

To date, no data have shown a cause and effect relationship between disabilities and delinquency; however, several theories offer possible explanations for the high number of youth with disabilities found in the criminal justice system: (a) school failure theory, (b) susceptibility theory, (c) differential treatment theory, (d) sociodemographic
characteristic theory, (e) response bias theory, and (f) metacognitive deficits hypothesis (Keilitz & Dunivant, 1986; Rutherford et al., 2001).

School failure theory posits that students with disabilities such as ED, LD, and MR are prone to have little academic success which, in turn, reinforces a negative self-image, decreases school attachment, and eventually results in school dropout and delinquency (Keilitz & Dunivant, 1986). From the perspective of susceptibility theory, many characteristics associated with ED, LD, and MR predispose individuals with these disabilities to criminal behavior (Keilitz & Dunivant). Differential treatment theory asserts that individuals with disabilities do not engage in a higher rate of delinquent behavior than individuals without disabilities, but they are treated differently by authority figures resulting in harsher punitive consequences (Keilitz & Dunivant). Sociodemographic characteristic theory asserts that there is no relationship between disability and delinquency, but instead sociodemographic factors, such as poverty, are the cause of both mild disabilities and delinquency (Keilitz & Dunivant). Response bias theory is similar to the differential treatment theory because it indicates that youth with disabilities do not engage in delinquent behavior more than youth without a disability, but instead are more forthright and honest when answering questions about their delinquency. Conversely, youth without disabilities are more apt not to reveal information about their delinquency, but instead give socially acceptable answers when interviewed about their delinquency (Keilitz & Dunivant). Finally, the metacognitive deficits hypothesis suggests that youth with disabilities lack problem-solving skills that would aid them to think critically about the consequences of their actions, thus increasing their risk of delinquency (Rutherford et al., 2001). Having a sound theory about the relationship
between disability and delinquency is important for providing a framework for effectively delegating services that can help to prevent youth with ED, LD, and MR from becoming incarcerated.

**Challenges Teaching Incarcerated Youth with Disabilities**

Teaching youth with disabilities presents complications that many correctional facilities are ill equipped to handle (US Department of Education, 1999). Many of the challenges highlighted in the literature about incarcerated youth include: (a) the frequent mobility of this population, (b) a lack of efficient student record keeping and transport between institutions, (c) a lack of parental involvement, (d) a lack of qualified educators, and (e) the ontology of incarcerated youth (Coffey, 1983; Kaufman, 2004; Leone & Meisel, 1997; Rutherford, Griller-Clark, & Anderson, 2001).

Despite their confinement, incarcerated youth tend to be highly mobile. Available statistics on the length of stay for youth offenders reveal that most spend less than a year in correctional facilities and their median length of stay is 68 days (Snyder & Sickmund, 2006). Such data suggest the classroom dynamic of correctional facilities is constantly changing. The length of stay varies by type of facility. For example, detention centers and jails are typically short term and used to hold juveniles for periods of time ranging from several days to several weeks as they wait preliminary and dispositional court hearings (Rutherford et al., 2001). These facilities are programmed primarily for custody and security, whereas educational and treatment programs are of secondary concern (Lawrence, 1998). Conversely, juvenile correctional institutions (often referred to as training schools) and adult correctional institutions tend to house youth offenders for longer periods of time ranging from several months to several years (Rutherford et al.).
Many long and short term facilities do not operate on the same academic schedule as public schools. Therefore, regardless of facility type, curriculum must be systematically programmed to meet the needs of confined youth. That is, protocols are established so incoming youth are quickly assessed and educational supports and accommodations are made to meet the specific needs of individuals. A likely scenario is that youth offenders having their community school instruction interrupted, are placed in a short-term detention facility, then may go to a long-term correctional institution, and finally released to public school after incarceration. The multiple changes in educational placements mean that the adolescent’s school records must follow him to each setting.

Another challenge in effectively educating youth in correctional facilities is lack of cooperation between correctional facilities and community schools in exchanging student educational records. In a case study conducted by Leone (1994), staff reported they could not conduct individualized educational program (IEP) meetings and place students in special education until they received student records from the local school district resulting in an average of 93 days between student commitment and enrollment in special education. Moreover, Zabel and Nigro (1999) report that special education students are more likely to move from school to school. Consequently, frequent mobility from school to school prior to incarceration increases the difficulty correctional facility personnel face in locating student records (Leone & Meisel, 1997).

Locating and involving parents is another obstacle faced by correctional facilities. For youth with disabilities this presents unique challenges due to legal mandates requiring the participation of parents/guardians in the educational planning process. Despite mandates, parents are rarely present for IEP meetings (Leone, 1994). However,
correctional facilities are permitted to use surrogate parents when necessary (Bolson, Quinn, & Nelson, 2004). Bolson and colleagues give the following explanation of what a surrogate parent is and what qualifications they should possess:

The surrogate parent acts on behalf of the student in all matters concerning the development of the IEP and the provision of a free appropriate public education. Surrogate parents should have some training in the provision and requirements of IDEA, as well as in parental rights, due process, and appropriate education provisions. It also is helpful if they understand the legal system and how it relates to education services. (p. 34).

Even though correctional facilities are permitted to use surrogate parents when a parent/guardian is not available, there are difficulties locating surrogates when they are needed and finding acceptable individuals to train as surrogates (Coffey, 1983).

Many members of the staff at youth correctional facilities are concurrently responsible for providing educational services and security. To clarify, securing correctional facilities involves ensuring that youth offenders are kept separate from the general population, restricting the movement of youth offenders within facilities, and the implementation of heavily regimented schedules (Lawrence, 1998). While securing a facility and its residents is important, it can also hinder provision of educational services. For example, it has been found that youth with disabilities are placed on disciplinary segregation longer than those without disabilities and during that time receive no special education services despite IEP mandates requiring such services (Leone, 1994). Furthermore, maintaining security at correctional facilities is frequently at odds with delivering an appropriate education because both entities compete for space, funding, and staff (Leone, 1994; Puritz & Scalia, 1998).
Incarcerated youth with disabilities in correctional facilities themselves present challenges to being effectively taught. That is, many lack prerequisite skills (e.g. effective reading) and/or exhibit non-compliant behaviors (Kaufman, 2004; Rutherford et al., 2001), thus hindering the teacher’s ability to reach educational objectives. When coupling the inadequate background knowledge and inappropriate behaviors of some incarcerated students it is likely that crucial instructional time is spent on classroom management (Jurich, Casper, & Hull, 2001).

Finally, the national shortage of teachers in special education (McLeskey, Tyler, & Flippin, 2003) creates an additional challenge for correctional facilities. Already grappled with a shallow pool of special educators from which to choose correctional facilities fail to attract many qualified educators because of the harsher conditions and lower pay they receive in relation to their public school counterparts (Leone & Meisel, 1997; Leone et al., 2005). Furthermore, many correctional facility educators have not received adequate training and do not possess appropriate certification to teach special education (Bullock & McAurthur, 1994; Rutherford, Nelson, & Wolford, 1985). Because many responsible for delivering specialized services in correctional facilities have received insufficient training, many youth offenders with disabilities may be going unidentified and even if identified they may not receive appropriate services.

In sum, these factors present challenges in teaching incarcerated youth with disabilities. Nevertheless, these multiple challenges must be addressed effectively if youth under state supervision are to receive an appropriate education.
An Effective Corrections’ Educator

For one to be an adequately prepared special educator who will be teaching incarcerated youth with disabilities the following elements need to be in place: (a) a special education teacher preparation program that offers courses specific to teaching in correctional facilities, (b) appropriate certification to teach special education, (c) ongoing professional development, and (d) culturally relevant pedagogy (Bullock & McAurther, 1994; Leone, 1986; Leone et al., 2005).

Due to the demands of their future working environment, special educators preparing to work in correctional facilities should be offered specific coursework to help prepare them in working with incarcerated youth with disabilities. After reviewing three correctional special education programs, Bullock and McAurthur (1994) identified theoretical knowledge, assessment, instructional interventions, team skills, evaluation, professional skills, vocational education, and behavior management as essential training components.

Leone (1986) recommended a multidisciplinary approach that offers elective courses in psychology, sociology, or criminal justice in addition to a sequence of courses in special education. Additionally, pre-service training should require extensive work in adult and juvenile correctional facilities and with disadvantaged youth with disabilities. Leone (1986) further stated that correctional special educators should be streetwise and politically savvy. “Streetwise means being able to communicate effectively with incarcerated youth and understand their world.... being politically savvy involves understanding the political context within which the program operates” (p. 45). Although not stated explicitly how preparation programs can teach pre-service teachers to be
politically savvy and streetwise, it can be inferred that these behaviors are acquired through preservice experiences in youth and adult correctional facilities.

Effectively teaching students with disabilities requires specialized skills. These skills include screening and identifying students, conducting function-based assessments, assisting in IEP development to ensure student needs are met, and delivering effective instruction to accommodate diverse learners (Coyne, Kame’enui, & Carnine, 2007; Meisel et al., 1998; Rutherford et al., 2001). One of the most accepted means for ensuring a special educator possesses those skills is through teacher certification. Furthermore, to stay current on best practices and in full compliance with the law for teaching students with disabilities, correctional special educators need to be provided with ongoing professional development (Leone et al., 2005; Meisel et al., 1998; Ochoa & Eckes, 2005). Professional development is an effective avenue to stay connected to practices taking place in community schools and it also provides key information for interpreting laws concerning students with disabilities.

Reading disabilities affect various learners at all levels; therefore, literacy teachers at all levels (e.g., middle school, secondary, etc.) should receive training and remain current on the best practices for providing reading instruction (Moats, 1999). On-going professional development is an efficient way to ensure teachers receive training in instructional methods that are evidenced-based, share pertinent information on reading research, and develop a plan of action to improve student outcomes (Biancarosa & Snow, 2006; Ediger, 2005). Showers and colleagues (Showers, Joyce, Scanlon, & Schnaubelt, 1998) collaborated with multiple teachers in a California high school and designed a course for students reading significantly below the ninth grade level. Teachers
participated in on-going professional development to learn how to use effective curricula and strategies to teach older struggling readers. After being in the course for one semester, students made reading achievement gains five times higher than what they had made previously over the same period of time. Furthermore, the reading course required that students engage in reading outside of school. Consequently, students averaged reading almost six books outside of school during the semester whereas prior to the reading course most reported that they had never completed a book outside of school.

An important component for on-going professional development is the literacy coach (Sturtevant, 2003). Literacy coaches can be master teachers who work within the institution or can be reading experts affiliated with universities or other organizations that provide consulting services. The literacy coach’s primary duties are to (a) be available for teacher questions, (b) model for teachers how to implement evidence-based instructional strategies and curriculum for reading, (c) regularly observe teachers using the learned strategies to ensure they are implemented with fidelity, and (d) work as a liaison between teachers and administration to shape the literacy curriculum for the entire school (Jetton & Dole, 2004; Sturtevant, 2003). A literacy coach can be an extremely valuable resource and should be present in a school for multiple years for optimum efficacy.

In addition to training teachers in instructional delivery, teachers should be trained to assess the effectiveness of their instruction. In other words, teachers need to be trained to ensure that students are developing skills correctly at an appropriate rate for success. It is imperative that teachers develop skills in assessing students for the purpose of making instructional decisions (Good, Simmons, & Kame‘enui, 2001). Curriculum-based measures have proven successful in monitoring the achievement of students (Fuchs &
Fuchs, 1997). Curriculum-based measurement (CBM) is a set of methods for indexing academic competence and progress. Based on a program of research conducted at many sites since 1977 (Deno, 1985), CBM specifies procedures for sampling test stimuli from local curricula, for administering and scoring those assessments, and for summarizing and interpreting the resulting data (Deno & Fuchs, 1987). Research has documented that CBM produces reliable and valid information about a student’s academic standing at a given point in time (Fuchs, Deno, & Mirkin, 1984) and that when performance is measured routinely on alternate forms of the assessment, CBM models academic performance adequately (Deno, 2003).

There is a disproportionate number of culturally and linguistically diverse youth, especially from impoverished backgrounds, in correctional facilities. Therefore, teachers must be culturally sensitive and practice culturally relevant pedagogy. The culturally diverse population residing in correctional facilities deserves to be taught in a manner that shows respect for their unique backgrounds. Ladson-Billings (1995) explains that the premises of culturally relevant pedagogy are (a) each student has had their own unique experiences that can be used as a criterion of meaning, thus making that individual an expert of knowledge; (b) all members of the learning environment construct meaning through dialogue, therefore rebuking the idea that there is one voice of authority who is the bearer of knowledge; and (c) teachers care about those they teach and hold themselves personally accountable for what they teach. Furthermore, if culturally relevant pedagogy is successfully implemented the following are student outcomes (a) maintained cultural knowledge and integrity, (b) academic success, and (c) empathy and a critical understanding of social inequality (Ladson-Billings).
The notion that culturally relevant pedagogy and scientifically-based instructional methods contrast is false because most culturally responsive practices are empirically validated instructional strategies (Heward, 2003; Kaufman et al., 2007; Kaufmann, Conroy, Gardner, Oswald, 2008). Therefore, teachers can ensure all three criteria of culturally relevant pedagogy (Ladson-Billings, 1995) are met by using evidence-based practices, exposing students to text that includes individuals from diverse cultures, and providing in-depth reading selections that permit students to answer both literal and inferential comprehension questions (Alber-Morgan, Ramp, Anderson, & Martin, 2007; Smith-D’Arezzo, 2003).

Incarcerated Older Struggling Readers

Because poor reading achievement is a criterion for eligibility to receive specialized services under the specific learning disabilities (SLD) label, the largest category in special education (Individuals with Disabilities Improvement Act of 2004, H.R. 1350, Sec. 602[30]), it would be accurate to conclude that there is disproportionate representation of older struggling readers who are incarcerated. Furthermore, students with other high-incidence disabilities, such as severe emotional disturbance (SED) and mild mental retardation, often experience reading deficits (Glassberg, Hooper, & Mattison, 1999).

What Reading Skills Do Older Struggling Readers Lack?

Across the population of older struggling readers, every type of reading deficit can be found. In other words, while similarities among older struggling readers exist, there is no prototypical older struggling reader. For that reason, reading deficits for each
individual must be determined and addressed appropriately. However, a significant number of incarcerated juveniles with disabilities are not receiving specialized services at an appropriate level to address their skill deficits (U.S. Department of Education, 1999).

Older struggling readers present unique challenges for interventionists because they must be taught new skills, implement those skills, and overcome the faulty strategies they have become accustomed to using (Spears-Swerling & Sternberg, 1994). For example, older struggling readers who score below third grade level on standardized reading assessments typically have deficits in the alphabetic principle; therefore, interventionists must explicitly teach them the alphabetic principle so they will understand the relationship between graphemes and phonemes and better be able to read words in isolation and/or connected text instead of simply guessing at a word based on the first letter (Bursuck & Damer, 2007).

Conversely, many older struggling readers know how to read words, but fail to comprehend what they have read (Biancarosa & Snow, 2006; Chall & Jacobs, 2003). Most would agree comprehension is the most important academic skill acquired in school (Mastropieri & Scruggs, 1997; NICHD, 2000), yet it remains the primary cause for older struggling readers’ failure (Snow & Biancarosa, 2003). Many attribute faulty reading comprehension to an inability to read fluently (Archer, Gleason, & Vachon, 2003; Biancarosa & Snow; Chall & Jacobs; Chard, Vaughn, Tyler, 2002). Chall and Jacobs explain that poor fluency adversely affects reading comprehension because it interferes with the ability to process words, thus preventing a struggling reader from understanding the overall meaning of what they are reading.
Indeed, fluency affects reading comprehension. However, prerequisite reading skills affecting fluency include decoding, and word recognition (Torgeson et al., 2001). Deficiency in decoding and word recognition cause many older struggling readers to show similar characteristics of beginning readers who demonstrate reading acquisition problems (Moats, 2001).

As mentioned, older struggling readers rely on faulty reading strategies to compensate for their reading deficits. Common strategies used to make up for deficient decoding and word recognition include reliance on sentence context and drawing from previous knowledge to guess at unknown words (Leach, Scarborough, & Rescorla, 2003). In the early years of reading this strategy is sometimes effective; however, as children progress through school, content becomes increasingly difficult and a higher rate of polysyllabic words are used. This renders the guessing strategy virtually ineffective. With no tools to decipher words, reading for older struggling readers becomes extremely laborious and usually results in their avoidance of reading (Archer et al., 2003; Moats, 2001).

The aforementioned pattern among older struggling readers exemplifies the Mathew effect of reading (Stanovich, 1986). That is, proficient readers already possessing strong reading skills will continue to strengthen those skills and struggling readers possessing weak reading skills will experience a continuous decline in their reading abilities. A partial explanation for the Mathew effect of reading is that older struggling readers do not interact with written text enough to improve their reading skills, while proficient readers are more likely to engage in reading.
Many who struggle with reading lack motivation to do it independently (Guthrie & Wigfield, 1999). Although the ability to directly measure motivation is impossible (Skinner, 1953), Wigfield and Guthrie (1997) have used questionnaires to indirectly measure motivation. By grouping questions into three categories of motivation self-efficacy, intrinsic motivation, and extrinsic motivation, they found that students ranking highest on the intrinsic motivation composite read nearly three times more than students ranking lowest and typically were stronger readers.

Addressing the social and academic deficits of youth offenders with disabilities, especially in the area of reading, must be a top priority if these individuals are going to have an improved opportunity for success upon release to the community schools. Foley (2001) found this population as a whole tends to share an experience of school failure and is drastically behind in the areas of mathematics and reading. Additionally, they tend to exhibit poor language skills and are in need of speech and language services. To adequately meet the educational needs of incarcerated youth with disabilities, instruction should utilize evidenced-based strategies (Coffey & Gemignani, 1994). Furthermore, by knowing what skills make a reader proficient, researchers and practitioners can better understand the deficits of struggling readers and how to remediate them effectively (Vaughn, Gersten, & Chard, 2000).

The National Reading Panel

The National Reading Panel (NRP) was a panel of reading experts assembled by the National Institute of Child Health and Human Development (NICHD) (2000). The task given to the NRP was to analyze an extensive amount of research and based on their findings report the most effective methods for teaching reading. After extensive research,
the NRP identified five essential components children must receive instruction in to become proficient readers: (a) phonemic awareness instruction, (b) phonics instruction, (c) fluency, (d) vocabulary instruction, and (e) text comprehension instruction.

Phonemic Awareness

Phonemic awareness (PA) is an understanding that all spoken words are made up of individual units of sound, called phonemes (Snow, Burns, & Griffin, 1998). For example, the word ‘top’ consists of the three phonemes /t/, /o/, /p/. PA instruction teaches students how to focus on and manipulate phonemes. The NRP found PA instruction helps students of all abilities improve PA and reading skills. Furthermore, PA instruction is most effective when PA is explicitly and systematically taught.

Phonics

Phonics is a method of instruction that teaches correspondence between graphemes and phonemes and their use in reading and spelling (Ehri, 2004). The NRP identified the following instructional approaches for teaching phonics; (a) analogy phonics, teaching students unknown words by analogy to known words; (b) analytic phonics, teaching students to analyze grapheme-phoneme relations in previously learned words to more effectively blend phonemes; (c) embedded phonics, teaching phonics by embedding phonics in text reading; (d) phonics through spelling, teaching students to phonemically segment words and choose letters for those phonemes; and (e) synthetic phonics, explicitly teaching students to change graphemes into phonemes and then blend the phonemes to form familiar words. Older struggling readers are typically categorized as those who have deficits in the alphabetic principle, or those who are able to decode words but have poor vocabulary, and text comprehension (Bursuck & Damer, 2007). The
NRP found that providing systematic phonics instruction can improve older learners decoding, spelling, and oral reading skills (NICHD, 2000). Specifically, synthetic phonics instruction was found to be an effective instructional method for students with disabilities.

**Fluency**

Reading fluency is the ability to read text quickly, accurately and with proper expression. Reading fluency is an important reading component because of its relationship with comprehension. Fluency allows a reader to increase his exposure to text and ensures the effort needed to comprehend text is not expended on effortful decoding and word recognition (Kuhn & Stahl, 2003). The NRP found that guided repeated oral reading is an instructional strategy that has a positive and significant impact on word recognition, fluency, and comprehension for readers across grade levels and reading abilities (NICHD, 2000).

**Vocabulary**

According to the NRP vocabulary instructional methods should be appropriate for a reader’s age and ability to produce gains in comprehension. Instructional methods for teaching vocabulary ranged from incidental learning through storybook reading to substituting easy words for more difficult words. Although, the NRP did not find the best approach for vocabulary instruction they recommended that (a) vocabulary be taught directly and indirectly, (b) students have multiple exposure and practice with vocabulary words, and (c) computer technology can be an effective instructional tool (NICHD, 2000).
Text Comprehension

Text comprehension is the most important skill acquired in school because it allows academic learning, as well as lifelong learning (Mastropieri & Scruggs, 1997; NICHD, 2000). The NRP found that text comprehension instruction was most effectively done by teaching a combination of strategies (i.e., question generating, graphic organizers, self questioning, question answering, and summarization). Additionally, cooperative learning was found to be an effective instructional method for students to learn and use comprehension strategies.

The NRP findings have not gone unchallenged. Some of its criticisms are that the number of studies examined are insufficient to meet the criteria of a meta-analysis, the functioning level of the students included in most studies does not allow for generalization to students without disabilities, and that the NRP’s focus was too narrow (Garan, 2001; Shanahan, 2004). Although these criticisms raise important issues, the NRP report was an important analysis of research and emphasizes the need to approach reading instruction systematically and to use evidence-based practices. Furthermore, implications from their findings for incarcerated youth who are older struggling readers are that (a) students of all ages and abilities can learn to read if provided effective instruction, (b) reading is a complex process that requires the mastering of specific skills to become a proficient reader, and (c) steps to becoming a proficient reader are interrelated and the proficient reader, when encountered by text constantly moves between the lower and higher levels of the reading process. To illustrate the last implication, Figure 1.1 depicts in a stepwise fashion the interdependent skills of proficient readers and the constant movement between those skills.
Figure 2.1: The interdependent steps of the reading process for a proficient reader.

Evidence-based Practice

Adequately equipping older struggling readers with skills needed to experience academic success requires highly intensive, ongoing intervention (Torgeson, 2004). Time is a luxury older struggling readers do not have; therefore, in addition to instruction being effective, it must accelerate closing the reading gap. With recommendations from the NRP as a guide, the following will discuss reading interventions that had positive effects on the reading skills of older struggling readers who do and do not reside in correctional facilities.

Reading Interventions Conducted in Juvenile Custody Facilities

One evidence-based strategy found to be effective for youth with disabilities in correctional settings is direct instruction (Coffey & Gemignani, 1994; Foley, 2001). In fact, Direct Instruction was used in a recent study conducted by Allen-DeBoer,
Malmgren, and Glass (2006) as a reading intervention for incarcerated youth with emotional and behavioral disorders. The intervention used Corrective Reading, which is an empirically validated, scripted reading curriculum that facilitates increasingly difficult reading skills and strategies at an expedited pace to help students performing below grade level rapidly progress (Englemann, Hanner, & Haddox, 2002). Four students, ranging in age from 16 to 18 years old were chosen to participate. Prior to intervention their reading grade equivalents ranged from 4.1 to 5.0 grade level. The intervention consisted of 30-minute sessions five days a week lasting approximately nine weeks. Allen-DeBoer and colleagues found that students increased their oral fluency by an average of 36 words correct per minute and reduced their error rate by an average of two per minute. Additionally, students achieved grade equivalent increases as high as 2.3 in reading fluency, 2.4 in reading accuracy, and 4.1 in reading comprehension.

Malmgren and Leone (2000) conducted a study even shorter than the one previously mentioned and had promising gains. Their study lasted six weeks and was conducted at a juvenile detention center for 45 youths with and without disabilities. Participants were provided an intensive reading intervention in the form of a treatment package consisting of Corrective Reading, whole language instruction delivered via reciprocal peer tutoring, and oral reading (i.e., read-aloud) by the teacher. The Corrective Reading program was the largest component of the intervention and was delivered in small groups or one-on-one by teachers and paraprofessionals. Using pre-test and post-test data from the Gray Oral Reading Tests, 3rd edition (GORT-3), Malmgren and Leone found students made statistically significant gains on the rate, accuracy, and passage subtests.
Also using *Corrective Reading*, Drakeford (2002) conducted an eight week study to improve the reading skills of incarcerated youth with disabilities. Participants received instruction for one hour three times a week. Overall, results indicated that all participants increased oral reading fluency and from pretest to posttest grade level gains ranged from one-half to one grade. Furthermore, reading attitudes changed and participants expressed positive statements about reading.

Peer tutoring is another evidenced-based instructional model which has been found to be highly effective in correctional facilities (Malmgren & Leone, 2000; Steurer, 2000). Steurer (2000) reported the success the Peer Tutoring Program has had in providing literacy instruction in the Maryland Correctional Education Program. Collected data revealed tutors contributed to helping literacy students on average gain three months in reading skill level for every one month of instruction. Furthermore, the Peer Tutoring Program is significant in helping the Maryland Correctional Education Program meet the high demands placed on it by the large student to teacher ratio. Despite the lack of empirical studies conducted in correctional facilities, educators can still use teaching methods found to be effective for older struggling readers who are not incarcerated.

*Decoding Skills*

Although few studies focus on teaching decoding skills to older learners, reading programs such as *Corrective Reading* and *Great Leaps* are designed to teach older struggling readers decoding skills (Kinder, Kubina, & Marchand-Martella, 2005; Mercer, Campbell, Miller, Mercer, & Lane, 2000). *Corrective Reading* has been effective in improving the reading skills of a variety of learners: junior high students with SLD (Arthur, 1988), middle school students with SLD and MR (Polloway, Epstein, Polloway,
Abbot and Berninger (1999) conducted a 16 week study; providing one hour per week of tutoring for 20 students ranging in grades four to seven. All students were identified as low achievers in reading. Students were randomly assigned to a control or treatment group. Both groups received training in components for beginning word recognition (i.e., phonological awareness, alphabetic principle, and decoding) and oral reading of sight words. However, during sessions the treatment group received 15 minutes of instruction using the Words program (Henry, 1990). The Words program provided explicit instruction in syllable types and morpheme patterns. Additionally, during the phonological decoding component of sessions, individuals in the treatment group received prompts reminding them to apply what they had learned. During text oral reading when an individual made a mistake his tutor modeled how the previously instructed decoding skills should be used to decode words. Conversely, individuals in the control group received 15 minutes of study skills instead of the Word program; they received no prompts during the phonological component of sessions, and did not receive modeling from their respective tutors when errors were made during text oral reading.

Eight measures were used to assess changes in IQ, phonological awareness, reading comprehension, orthographical awareness, instructional grade level, letter naming, and accuracy. Overall, findings revealed there were no significant differences between groups and participants. Both groups made gains from pretest to posttest in phonological decoding, accuracy, and single word recognition. Implications of these findings are that while prompting and corrective feedback are helpful what is essential for helping students
improve phonological awareness and single word recognition is explicit instruction in those skills.

Also examining the effects of phonological instruction, Bhat, Griffin, and Sindelar (2003) conducted a two-phase study. The purpose of the first phase was to determine the prevalence of phonological deficits in middle school students with reading problems. The purpose of the second-phase was to examine if instruction in phonological awareness would improve phonological skills and word recognition. Forty middle school students identified by their teachers as having reading problems participated. Students were screened using the *Lindamood Auditory Conceptualization Test* (LACT) (Lindamood & Lindamood, 1979). The researchers found that the average score of all participants was lower than that of the average score for middle school students (i.e., 58 and 93 respectively). During the second phase, researchers used the *Great Leaps Reading Program* (Mercer & Campbell, 1998), to provide direct instruction of phonological skills to the participants. Instruction lasted approximately four weeks. Students received instruction three days per week, and were taught two lessons per day. A within-group repeated measure design was used to assess changes in students’ reading skills. That is, groups were given a pretest, mid-test, and posttest. Measures used were the Word Identification subtest of the *Woodcock Reading Mastery Test-Revised* (WRMT-R) (Woodcock, 1987) and the *Comprehensive Test of Phonological Processes* (Torgeson, Wagner, & Rashotte, 1999). Overall, from pretest to mid-test, and mid-test to posttest participants significantly improved their phonological skills. However, direct instruction of phonological skills did not generalize to word identification because from pretest to mid-test and mid-test to posttest no significant gains were made. Similar to the previous
study, students only made progress in the skill directly taught (i.e., phonological awareness) and not in the untaught skill of word identification. Therefore, if students are to make gains in word recognition, they should receive direct instruction of sight words as well as practice opportunities with those words.

Lenz and Hughes (1990) taught a word identification strategy to 12 junior high students with learning disabilities to reduce oral reading errors. The strategy involved the use of a mnemonic (DISSECT) to help students recall a seven-step strategy for identifying polysyllabic words. The strategy was as follows: (a) discover the context, (b) isolate the prefix, (c) separate the suffix, (d) say the stem, (e) examine the stem, (f) check with someone and, (g) try the dictionary. The usage of each step depended on if the previous step helped the student correctly identify the target word. Results indicated that after being trained to use the word identification strategy students were able to reduce oral reading errors. However, measures taken on reading comprehension revealed that no significant gains were made.

Decoding is an essential skill for beginning and older struggling readers. For these learners, instructors should initially teach decoding skills in isolation. However, as the aforementioned studies reveal, instructors should program for generalization by directly teaching and allowing for the practice of sight words. Furthermore, instructors should directly teach word identification strategies to help students read polysyllabic words.

**Fluency**

LeBerge and Samuels (1974) developed the automaticity model for reading; they viewed oral reading fluency as an indicator of overall reading skill. Their premise was that reading, like all complex skills, required coordination of the components in order to
obtain maximum results. If any of the components required undue attention it would take attention away from the final outcome. Their work slowly lead to increased interest about the influence oral reading fluency has on reading achievement (Fuchs, Fuchs, Hosp, & Jenkins, 2001). Binder (1988) defined fluency as the rate of performance that enables skills to be applied daily and to be maintained over time. Kuhn and Stahl (2003) reviewed the literature on fluency and concluded that teachers should engage in fluency training more frequently because it improves not only oral reading accuracy but also comprehension. Fluency serves as a connector between decoding and comprehension that allows students to increase their overall reading achievement (Carnine, Silbert, Kame’ enui, & Tarver, 2004).

Repeated reading is one strategy that developed from the work of LeBerge and Samuels (1974). It has demonstrated effectiveness in improving reading achievement of students in fluency as well as comprehension (Dahl, 1977; Samuels, 1979). Repeated reading involves a student orally reading a passage to a competent tutor (e.g., teacher, skilled student, etc.) who follows along as the student reads recording errors. Reading passages should be at the independent reading level (Bursuck & Damer, 2007). After the student has read the passage the tutor counts the number of correct and incorrect words. The student’s score is charted. The student repeatedly reads the passage until the predetermined criteria for oral reading fluency has been achieved (Therrien & Kubina, 2006).

Mercer and colleagues (2000) conducted a study to improve middle school students with learning disabilities’ fluency by providing phonological skills instruction and repeated readings. A total of 49 students participated in the study. Depending on
when they began, students were placed in one of three groups: (a) group one, students received intervention for 19 to 25 months; (b) group two, students received intervention for 10 to 18 school months; and (c) group three, students received intervention for 6 to 9 school months. Sessions took place every school day (i.e., five days a week) and lasted five to six minutes. Teacher assistants delivered one-to-one tutoring sessions using the Great Leaps Reading program (Mercer & Campbell, 1998). Sessions consisted of four components. During the first component the tutor modeled the correct pronunciation of phonemes the student may have difficulty with and then prompted the student to read as many sounds as he could for one minute. Next, students were prompted to read sight phrases for one minute. During the third component of tutoring, students were prompted to read passages orally for one minute. For each component, advancement to a more difficult page depended on student speed and accuracy. For example, if a student read an entire page of sight phrases and made two or fewer errors he advanced to the next lesson; if the entire page was not read or more than two errors were made the lesson was repeated in the next session. An experimental pretest/posttest three-group design was used to determine changes over time. Reading passages from the reading basal used by the school district, were used as the curriculum-based assessment (CBA). The CBA was used to gather students’ pretest/posttest data. The grade level of each reading passage was calculated and students’ grade level growth was calculated by taking the difference between the pretest/posttest reading grade levels. Major findings revealed all groups achieved significant grade level growth. Specifically, participants in group one improved by 3.14 grade levels, group two improved by an average of 3.08 grade levels, and group 3 improved by 1.82 grade levels.
Similarly, Devault and Joseph (2004) coupled repeated readings with phonological skills instruction to improve the fluency levels of three high school students. Sessions lasted 15 to 25 minutes and took place five days per week (information pertaining to the duration of the intervention was not given). Using a curriculum-based measure (CBM), researchers administered a 1-minute probe on passages at a level slightly higher than participants were able to read independently to collect pre-intervention data. For example, a participant reading independently at a first grade level was given a 1-minute reading probe on a passage at a second grade level. During sessions participants were first given a 1-minute oral reading timing. Words read incorrectly were written on index cards and directly taught using the word boxes phonics technique. Word boxes phonics technique is done by placing empty boxes above the corresponding word letters. Letters are placed under boxes and as the instructor teaches students to sound the letter out the letter is placed in its corresponding box and then the entire word is pronounced. Following the word box technique, students were again given a 1-minute timing on the same passage. Results indicated that all students made gains in reading fluency (i.e., speed and accuracy) on passages read at their ability level as well as passages read slightly above their ability level.

Repeated readings were an essential component of an intervention package Alber-Morgan and colleagues (2007) used to help four students with mild disabilities improve their fluency and comprehension skills. In addition to repeated readings, the intervention package included systematic error correction and performance feedback. Data were collected for 11 weeks. Using a multiple baseline across participants design to analyze the effects of the intervention package, the researchers implemented three conditions: (a)
baseline, (b) repeated reading, and (c) repeated reading plus prediction. During baseline, students read for 1-minute and words read correctly and incorrectly were recorded. If a student did not complete the passage he was instructed to finish and then answered comprehension questions. In the repeated reading condition, a student was prompted to read a passage and received systematic error correction and performance feedback while reading. Subsequently, a 1-minute timing on the passage was given and the student orally answered comprehension questions. The final condition included the same methods of the repeated reading condition plus prediction. The prediction component was the student telling the researcher, based on the passage title, what he thought the story would be about and then modifying his prediction after reading the first two sentences. Overall, findings revealed a functional relationship between repeated readings and fluency for three of the four participants. That is, a significant effect occurred only when the intervention was applied. From baseline to subsequent conditions slight gains were made in reading comprehension; however, due to an already increasing trend line and ceiling effects it is difficult to conclude if in the final condition adding the prediction component increased reading comprehension.

**Vocabulary**

The ability to understand individual words is essential for reading comprehension (Rupley & Nichols, 2005). Vocabulary acquisition is a cumulative skill that continues to develop over time. As described by Hart and Risley (1995), there is an extreme gap between the numbers of words affluent children are familiar with as opposed to children from low SES. Based on vocabulary acquisition trajectories, it is highly unlikely the gap will be closed without explicit vocabulary instruction and incidental learning.
opportunities through multiple modes of communication (i.e., independent reading, writing, conversation, etc.) (Nagy, Anderson, & Howard, 1987; Rupley & Nichols, 2005). Essentially, one never masters vocabulary. That is, it is not plausible that one would know the meaning of the more than 400,000 words that can be found in a comprehensive dictionary. Contrarily, individuals only know, to varying degrees, a fraction of those words and develop strategies for learning the meanings of unknown words (Carnine et al., 2004).

To assess the effectiveness of two vocabulary instructional approaches, Fore, Boon, and Lowrie (2007) conducted a study to compare a definition model (typical class vocabulary instruction) with a vocabulary concept model on math terminology. The vocabulary concept model was an instructional approach that utilized concept diagrams and class discussions about specific vocabulary words to gather the meaning of those words. A single subject, multiple baseline design was used across six participants. The participants were seventh grade students identified as having learning disabilities. During the baseline condition, a definition model was used. That is, the teacher presented a math term, told students to look the term up in the dictionary, and wrote the agreed definition on the board for students to copy. Students then had to write the term in a sentence. During the concept model condition (intervention) students were given a blank concept diagram and the teacher said the target word, wrote the target word and definition on an overhead projector, and then led a class discussion about the target word. Class discussions included the class discussing characteristics of the target word, the teacher giving examples and non-examples of characteristics present in the word, and the teacher eliciting student questions specific to the target word and providing an answer for those
questions. Furthermore, the concept diagram was filled out by students as the discussion took place. During both the definition model and concept model conditions a weekly quiz was given on five terms that had been the focus of instruction that week. Findings revealed that the overall mean score of all participants during baseline was 63.75% and 90.67% during intervention. In other words, the students improved from a class average equivalent of a “D” to an “A.”

MacLean (2000) conducted a case study to determine what effects interactive vocabulary instruction would have on reading comprehension, fluency, and vocabulary usage in writing and speaking. Interactive vocabulary instruction is a method that incorporates a variety of activities (e.g., analogies, antonyms and synonyms, discussion, graphic organizer, etc.) for students to learn the meaning and form of an unknown word. Four students with learning disabilities in the fourth and fifth grade participated in the study. It was found during interactive reading instruction that three out of four participants made gains in reading comprehension and fluency. The researcher did not observe students using learned vocabulary words in their writing or speaking and attributed that to the relatively short duration of the intervention. This could also mean that a generalization strategy was needed before the students would use the new skill in an untrained environment.

As evidenced, students are able to make significant gains in vocabulary and comprehension when instructional methods provide multiple exposures to the target words. Concept diagrams, classroom discussions, and direct instruction of word definitions are some instructional methods that give students multiple opportunities to interact with vocabulary words. An area of vocabulary instruction still in need of further
research is effective strategies to program for vocabulary generalization (i.e., using target words in conversation and writing).

*Text Comprehension*

Many would agree that explicit strategy instruction is one of the most effective methods for teaching students how to comprehend text (Fielding & Pearson, 1994; Mastropieri & Scruggs, 1997; NICHD, 2000). Evidence-based strategies that should be directly taught to students include (a) comprehension monitoring, (b) cooperative learning, (c) graphic organizers and story maps, (d) question answering, and (e) summarizing.

Explicitly teaching a student comprehension monitoring strategies can increase his ability to recognize when he does not understand what he is reading. This is a critical skill proficient readers possess and it allows them to know when and which type of fix-up strategy must be applied to overcome comprehension difficulties (Gersten, Fuchs, Williams, & Baker, 2001).

Using graphic organizers is an effective comprehension strategy that provides visual prompts for students to identify important information and the structure of a reading passage (Bursuck & Damer, 2007). A teacher can give students ability specific graphic organizers. That is, a student can utilize a graphic organizer that is partially complete or one that is blank, depending on his level of reading comprehension. Graphic organizers are easy to obtain or create. Story maps are graphic organizers that prompt a reader to systematically analyze and document important information within a reading selection; to assist in overall understanding of the text and to retell what was read.
Teachers should ensure students understand how to use graphic organizers by providing explicit instruction on its use and avoid using graphic organizers that are confusing.

A literature review conducted by Mastropieri and Scruggs (1997) revealed that, overall, text enhancements helped facilitate reading comprehension. However, some text enhancements are much more effective than others. For example, studies examining the use of mnemonics, spatial organizers, study guides, and semantic feature analysis charts had greater effects on students than studies examining the use of representational illustrations and imagery.

Question answering is an effective comprehension strategy that helps students understand and remember what they have read. Depending on the question type (i.e., factual or inferential), answering questions prompts students to locate specific information within text that has been read or engage in critical thinking about what has been read so they can answer inferential questions (Bursuck & Damer, 2007).

Self-questioning is a strategy that requires the reader to actively respond to the text as he reads. Some reasons why this strategy is helpful are because it allows the reader to identify important concepts, make inferences, and self-monitor comprehension (Bursuck & Damer, 2007). Teachers should model this strategy for students by reading a passage aloud and frequently stopping to ask herself questions. This will teach students what kinds of questions they should ask themselves and when self-questioning is needed (Gersten et al., 2001).

In Mastropieri and Scruggs’ (1997) literature review, they found that questioning strategies were the most effective approach to facilitate reading comprehension. Methods for appropriately using this strategy require that students stop and question themselves.
before, during, and/or after reading a passage to help them understand the material. Students’ questions about the text can focus on prediction, main ideas, summarization, and mid-passage understanding (i.e., stop while reading a passage and engage in self-questioning to determine if what has been read thus far is understood).

Summarizing text is an effective strategy that students can employ following the reading of paragraphs or entire passages. Teaching a student to summarize text helps him identify the most important elements of that text (i.e., main idea) and remember what he has read. Bursuck and Damer (2007) state that an effective method for teaching students to summarize expository text is having them restate the main idea of a paragraph in their own words. Additionally, story maps are effective for summarizing narrative text.

Researchers agree that a student’s mastering of comprehension strategies depends on the teachers’ ability to explicitly teach the strategy by modeling it for her students, allowing her students to practice the strategy with guidance and then independent practice, consistently monitoring students use of the strategy, and providing students with feedback. Moreover, explicitly teaching students how to use comprehension strategies has proven to be effective for students with and without disabilities for narrative as well as expository text (Gersten et al., 2001; Mastropieri & Scruggs, 1997). However, it is important that students use and are taught numerous comprehension strategies (NICHD, 2000). Finally, if students are adequately taught variations of strategies their use can be very effective. For example, students can be taught to use more than one strategy at a time and/or incorporate self-monitoring procedures. Finally, a classroom approach to ensure students use multiple comprehension strategies is by allotting time for peer collaboration.
Jitendra, Cole, Hoppes, and Wilson, (1998) conducted a three-month study to examine the effects of direct instruction and self-monitoring on students’ reading comprehension of narrative and expository passages. The researchers taught 4 sixth graders with learning disabilities to summarize the main idea of narrative passages by using a seven-lesson direct instruction program that increased in task difficulty with each subsequent lesson. Next, students were taught to self-monitor their behavior by using prompt cards that described the steps for finding the main idea. Generalization was assessed using expository passages. Using a multiple probe design, overall results revealed that all subjects improved in reading comprehension following direct instruction in main idea summarization of narrative passages. Reading comprehension improvements increased for all participants following instruction in self-monitoring. Furthermore, generality probes indicated that main idea summarization of narrative passages generalized to expository passages as evidenced by improved reading comprehension of those passages.

Peer Collaboration

Cooperative learning is an effective strategy that allows students with diverse reading abilities to work as a group and practice comprehension strategies. For cooperative learning to be effective the teacher must carefully plan, model expected behaviors, and monitor the session (Bursuck & Damer, 2007). Furthermore, each student within the group must have a specific role, participate, and provide feedback to his peers.

To investigate the viability of peer collaboration using strategic reading in fourth-grade social studies’ classrooms, Klinger, Vaughn, and Schumm (1998) conducted an exploratory study to examine how students in the intervention condition (peer
Peer tutoring has emerged as a promising instructional strategy for teachers to implement and incorporates many strategies (Gardner, Nobel, Hessler, Yawn, & Heron,
Classwide peer tutoring has been particularly effective for producing positive results in the reading skills of minority, urban elementary students (Kourea, Cartledge, & Musti-Rao, 2007). Additionally, Nobel (2005) used classwide peer tutoring to improve the science vocabulary of middle school students at-risk of school failure. Therefore, it is important to examine classwide peer tutoring systems effectiveness for older struggling readers to observe if similar results will be produced.

Fuchs, Fuchs, and Kazdan (1999) used peer-assisted learning strategies (PALS) to assess what effect the program would have on struggling readers in high school. PALS is a classwide peer tutoring model in which peers are placed in dyads and partake in partner reading with brief retellings, paragraph shrinking, prediction relay, and point tracking for reinforcement. A total of 18 teachers participated in this study; 9 used PALS to supplement reading instruction in their classroom (treatment) and 9 did not (contrast). Supplemental PALS instruction was implemented 2.5 times per week for 16 weeks. To measure literacy development, the Comprehensive Reading Assessment Battery (CRAB) was used. Using a group design, the experimenters found that the treatment group did improve their reading comprehension more than the contrast group. However, there were no statistically significant differences in fluency between groups. Despite lack of difference between groups in fluency, overall findings are promising and demonstrate the need to conduct further research using PALS with older struggling readers.

In another study, Saenz, Fuchs, and Fuchs (2005) extended PALS research for ELL students. One hundred thirty-two ELL students with and without disabilities in grades 3 through 6 participated in this study. Sessions took place 3 times a week for 15 weeks. Using a group design, a pretest and posttest was given to ELL students receiving
PALS and ELL students receiving typical instruction. Findings revealed that from pretest to posttest ELL students using PALS had greater gains in (a) words read correctly during a read-aloud, (b) comprehension questions answered correctly, and (c) identifying missing words correctly in a cloze test.

To examine the effects of peers using commercial curriculum to tutor peers who were struggling readers, Harris, Marchand-Martella, and Martella (2000), trained high school juniors and seniors to use the Corrective Reading program (Engelmann, Hanner, & Johnson, 1999). After being trained, the tutors delivered instruction to 88 high school students with reading deficits. Based on standardized scores obtained before and after the intervention, tutees made gains in vocabulary and comprehension. Additionally, gains were made in oral reading fluency.

A similar study conducted by Marchand-Martella, Martella, Orlob, and Ebey (2000) combined peer-delivered Corrective Reading with repeated readings for high school students with and without disabilities who were reading well below grade level. Interobserver agreement data indicated that the peers delivering the program and recording data were able to do so with fidelity. Furthermore, their struggling peers made progress in their reading vocabulary, comprehension, and oral reading fluency.

Summary

In summary, older struggling readers have a range of reading deficits across all five NRP (NICHD, 2000) recommended skills. There is less research on instructional strategies for older struggling readers than for young readers. However, there is a growing number of instructional strategies that demonstrate empirical evidence of success (Fuchs et al., 1999; Gersten et al., 2001; Klinger et al., 1998; Mastropieri &
Scruggs, 1997). Based on reading research conducted in correctional facilities for adolescents with disabilities, Direct Instruction provides a reading curriculum that will produce positive results in a short period of time for these students. Additionally, students are aware of the progress they make and consequently express positive attitudes about reading. The results from these studies reveal that students with disabilities in correctional facilities can be taught if intensive curriculum is used with fidelity. For example, Drakeford (2002) demonstrated that incarcerated struggling readers can make progress in a short amount of time when a highly intensive and systematic curriculum such as *Corrective Reading* is used. Moreover, Steurer’s (2000) study reported how peers can be effectively utilized to create a more efficient classroom environment and deliver instruction to help struggling peers make gains in their reading. Overall, these studies are promising, however, questions regarding the effects of interventions provided for a longer period of time, maintenance and generalization of learned skills can only be answered if more empirical research is conducted in correctional facilities.

A consistent theme throughout all of the studies presented in this review is that students improve their reading deficits when explicit instruction focuses on the identified deficit. For example, the students in the Abbot and Berninger (1999) study made gains in phonological awareness when it was explicitly instructed. Students in the Devault and Joseph (2004) study improved their fluency when a repeated reading strategy was implemented. Additionally, peer mediated instruction show some promising results for helping struggling readers to improve their skills (Harris et al., 2000).

Another consistent finding is the interdependent relationship across the five NRP reading skills. Improvements in phonological skills lead to improved fluency (Mercer et

Unfortunately, there is not enough empirical evidence in the literature to make sound conclusions about technology driven instruction for older struggling readers. This is despite the fact there are a growing number of reading programs on-line (e.g., Headsprout, 2001-2006; Reading a-z, n.d.; Reading Comprehension Connection, 2007) that are primarily focused on young children. This area of reading instruction needs to first, be scientifically validated; and second, be age-appropriate for older learners.

Finally, while older struggling readers do pose a significant challenge to teachers there is clear empirical evidence that with explicit instruction these students can make significant progress in their reading skills. Teachers can implement an empirically validated curriculum such as Corrective Reading to improve the outcomes for older struggling readers (Harris et al., 2000). Binder and Watkins (1990) have reported the empirical data that validates the effectiveness of Precision Teaching and Direct Instruction in improving the overall reading achievement of students. Teachers are an essential component of any educational program and effectively preparing them directly impacts how prepared youth leaving correctional facilities will be. Furthermore, special educators in correctional facilities should receive on-going training and support to ensure they remain knowledgeable about the most effective pedagogical strategies available.
CHAPTER 3

METHOD

This chapter describes the methods used in this experimental study. Specifically, the following are described in detail: (a) setting, (b) participants, (c) researcher and observer, (d) dependent variables, (e) independent variables, (f) experimental design, (g) procedures, and (h) study conditions.

Setting

The study took place at a residential facility for agency referred or adjudicated youth. The school is located on a ranch within a large metropolitan area of the Midwest. The ranch consists of multiple lodges for its residents, recreational facilities, administrative buildings, and the school. Both males and females reside at the facility. All students have been referred to the school due to problematic behavior in their local schools or communities. Both mental health and educational services are provided on the ranch.

The school is part of the surrounding local school district. The academic calendar used by the local district is the same one used by the residential school. The school is in session for 10 months out of the year, and residents attend classes Monday through Friday.
The school’s enrollment was 82 students in grades 5 through 12. Caucasians accounted for 51% (42) of the total enrollment, African Americans accounted for 43% (35), and 6% (5) were Multiracial. All of the students enrolled were eligible for free lunches. Students identified as having a disability accounted for 54% of the total enrollment. The students were required to take all state mandated tests. Enrolled students receive school credits, for work completed, that are transferable to their community schools.

The school did not use any formal reading instructional program. Students did participate in daily literacy development activities such as silent reading, whole group read aloud, writing, and computer exercises. For eligible students, a speech and language specialist provided a one-hour session per week.

Instructional Setting

The experimenter conducted the intervention from approximately 8:15 to 10:00 a.m. Monday thru Friday. During the experimental conditions of the study for each dyad, daily sessions did not occur if (a) the school district had a break or holiday (e.g., Spring break), (b) statewide and district testing were occurring, or (c) one or both of the participants of a dyad were not available because of absence or disciplinary reasons.

Instruction was provided in one of two rooms within the school, depending on which was available. One room was a conference room and the other was the teachers’ lounge. In the conference room, instruction was provided at a round table. The conference room contained stacks of text books and old computers. The conference room was the quietest room in the school and was used exclusively by the participants during sessions. In the teachers’ lounge, instruction was provided at a 5’ X 2’ rectangular table.
The teachers’ lounge contained two 5’ X 2’ rectangular tables in a row, a large bookshelf, and a partition with an employee work station on the other side. At times, participants had to share the teachers’ lounge with other staff. When the conference room was not available the teachers’ lounge was the quietest area available.

Participation

The participants in this study were students in a residential facility classroom for juveniles who were court ordered or referred through social service agencies. The students attended a school located on the grounds of the residential facility. All of the participants in this study were in the same classroom. The participants in this study attended a classroom that consisted of one teacher, teacher assistant(s) (number varied based on students’ behaviors), and a range of 10 to 12 students. The participants’ ages ranged from 14 to 17 years old. All of the participants were male and were identified as having a disability. They were expected to attend all educational and counseling services that were provided at the school every weekday from 8:00 a.m to 2:30 p.m. Five of the participants were on parole and had to adhere to the requirements set by their parole officers or were subject to be removed from their current setting and placed in a more restrictive facility. Throughout the study the behavior management plan used by the school remained in effect. The experimenter worked with the school faculty to supervise the participants, but the school faculty was responsible for implementing consequences for non-compliant student behaviors.

Students were selected for possible participation in the study based on the recommendations of the principal and teacher, as well as the projected length of a student’s stay in the facility. The experimenter asked the teacher and principal to identify
students who were below grade level in reading for tutoring. Also, the experimenter asked for students who had the best reading skills in the classroom to be identified.

Eight students were selected to participate in this study. Four students acted as tutors (TR) and four students acted as tutees (TE) creating four dyads (i.e., tutor and tutee pairs). Initial pairings of TE’s with TR’s were based on the teacher’s recommendations about which students got along and worked well together. Pairings are denoted by the number following the labels “TE” and “TR.” For example, TE1 and TR1 were a dyad and so forth. Due to attrition, two participants (TE4 and TR1) did not participate for the entirety of this study. One participant was released and returned to the community and one was sent to jail due to a prior offense. Both participants exited the study around the same date; therefore, their respective TE and TR were grouped together. That is, TE1 was grouped with TR4 for the remainder of the study beginning with session 27.

Selection Procedures

Principal Recommendation

The experimenter contacted the principal and explained the purpose of the study, experimental procedures of the intervention, and the study’s timeline. The principal reviewed the release dates of all the students from the school and identified a classroom with a majority of students who were projected to be at the school throughout the study’s timeline. A letter of support for the study (Appendix A) was obtained from the school principal before the experimenter contacted the classroom teacher.

Teacher Recommendation

The experimenter met with the classroom teacher to explain the study and request recommendations for students to participate in the study. The teacher was asked to
nominate four students who exhibited the strongest reading skills in his class (i.e., tutors), and four students who exhibited the weakest reading skills (i.e., tutees).

Parent/guardian Consent

Parents/guardians of students identified by the teacher for the study were sent letters requesting their permission for their child to participate as a tutor or tutee. The letter explained the purpose of the study and provided a consent form for the parents/guardians to sign and return (Appendices B, C, and D). The parents were told that their child’s participation was voluntary and that he could be withdrawn at any time without penalty. Written consent was obtained prior to beginning the study.

Student Assent

A script using age-appropriate language was given to students to read (Appendix E). As a group, all students who agreed to participate read the script aloud saying his name in place of the blank.

Screening for Reading Achievement

All students identified, by the teacher, as being skilled readers (i.e., potential tutors) and struggling readers (i.e., potential tutees) were assessed using the *Woodcock Reading Mastery Test-Revised* (WRMT) (1987) Word Identification, Word Attack, Passage Comprehension subtests, the Slosson Oral Reading Test (SORT) (Slosson, 1990), and The Corrective Reading Placement Test (CRPT) that is accompanied with a Decoding Placement Schedule to determine if *Corrective Reading* is needed and at what level (Appendix F and G) (Englemann et al., 1999). Collectively, these assessments focus on word recognition, nonsense word reading, comprehension, and fluency. Based on the students’ performance on these assessments, students exhibiting stronger reading
skills were designated as tutors (TR) and students exhibiting weaker reading skills were designated as tutees (TE).

All student participants’ attendance was deemed sufficient for participation in this study. However, their attendance records were not reviewed. Through observation and interaction with the experimenter, all student participants demonstrated social skills (i.e., following directions, asking questions, etc.) necessary to participate in this study. However, no formal measurements of these behaviors were recorded. The demographic and assessment information of the participants are presented in Table 3.1.
<table>
<thead>
<tr>
<th>Student</th>
<th>Sex</th>
<th>Race</th>
<th>Age Years-Months</th>
<th>Disability</th>
<th>Word Identification</th>
<th>Word Attack</th>
<th>Passage Comprehension</th>
<th>SORT</th>
<th>CRPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE1</td>
<td>Male</td>
<td>Caucasian</td>
<td>15-6</td>
<td>Emotional Disturbance</td>
<td>3.9 (64)</td>
<td>3.2 (18)</td>
<td>3.6 (32)</td>
<td>4.0</td>
<td>B1</td>
</tr>
<tr>
<td>TE2</td>
<td>Male</td>
<td>African American</td>
<td>16-7</td>
<td>Emotional Disturbance</td>
<td>5.3 (74)</td>
<td>3.8 (22)</td>
<td>4.1 (34)</td>
<td>6.7</td>
<td>B2</td>
</tr>
<tr>
<td>TE3</td>
<td>Male</td>
<td>Caucasian</td>
<td>16-3</td>
<td>Emotional Disturbance</td>
<td>2.8 (56)</td>
<td>2.0 (10)</td>
<td>2.8 (27)</td>
<td>3.5</td>
<td>B2</td>
</tr>
<tr>
<td>TE4</td>
<td>Male</td>
<td>African American</td>
<td>17-7</td>
<td>Emotional Disturbance</td>
<td>6.4 (78)</td>
<td>5.5 (29)</td>
<td>5.6 (40)</td>
<td>7.4</td>
<td>B2</td>
</tr>
<tr>
<td>TR1</td>
<td>Male</td>
<td>Caucasian</td>
<td>16-6</td>
<td>Emotional Disturbance</td>
<td>5.3 (75)</td>
<td>5.1 (28)</td>
<td>5.6 (40)</td>
<td>7.6</td>
<td>No</td>
</tr>
<tr>
<td>TR2</td>
<td>Male</td>
<td>Caucasian</td>
<td>15-6</td>
<td>Emotional Disturbance</td>
<td>10.3 (93)</td>
<td>9.3 (37)</td>
<td>6.8 (44)</td>
<td>12.5</td>
<td>No</td>
</tr>
<tr>
<td>TR3</td>
<td>Male</td>
<td>African American</td>
<td>17-6</td>
<td>Emotional Disturbance</td>
<td>6.3 (77)</td>
<td>6.2 (31)</td>
<td>6.8 (44)</td>
<td>8.3</td>
<td>No</td>
</tr>
<tr>
<td>TR4</td>
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<td>Caucasian</td>
<td>16-4</td>
<td>Learning Disability</td>
<td>6.7 (79)</td>
<td>3.8 (22)</td>
<td>5.6 (40)</td>
<td>8.1</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 3.1: Demographic and assessment information. *Note.* Grade equivalents are displayed with the raw score in parentheses underneath. *Note.* SORT = Slosson Oral Reading Test; CRPT = Corrective Reading Placement Test.
Experimenter and Observer

The primary experimenter was a doctoral candidate in special education and applied behavior analysis at The Ohio State University. He received his bachelor’s degree in sociology from Hampton University in Hampton, Virginia, in 2001. Upon completion of his bachelor’s degree he was hired as a teaching assistant at a day treatment center in Cleveland, Ohio. The center was for children who exhibited problematic behaviors that could not be managed at a regular school and required a more restrictive environment. In 2003, he moved to New York City and completed a masters program in elementary education and special education. He spent two years in New York teaching junior high and high school students with mild disabilities. In 2005, he entered the doctoral program in special education and applied behavior analysis.

A secondary observer was used to collect procedural integrity data. The secondary observer was a teaching assistant at the school. He served as a secondary observer for procedural integrity probes during the tutors training.

Definition and Measurement of Dependent Variables

There are six dependent variables that were measured in this study: (a) oral reading fluency, (b) comprehension probes, (c) reading achievement, (d) maintenance probes, (e) reading attitude, and (f) social validity.

**Oral Reading Fluency**

Oral reading fluency data were collected during baseline, peer mediated with DI, peer mediated with DI plus repeated reading, and maintenance conditions. Reading fluency is the ability to read text quickly, accurately, and with proper expression. In this
study, oral reading fluency was measured by the number of words read aloud in 1-minute, minus errors. Leveled reading passages from *AIMSWeb* (Shinn & Shinn, 2002) and *Great Leaps* (Mercer & Campbell, 1998) were used to conduct 1-minute timings (Appendix H and Appendix I respectively). A word was recorded as correct, by the tutor (TR), if the tutee (TE) correctly pronounced the word printed on the page. Self-corrected words were counted as correct if TE self corrects a word in three seconds or less without a prompt from TR. Reading errors were defined using the Harris, Marchand-Martella, and Martella (2000) model for miscues. Errors included (a) deletions, TE made no attempt to pronounce a word and moved on to the next word; (b) substitutions, TE pronounced a word that was not phonemically related to the printed word; (c) mispronunciation, part of the printed word was not pronounced correctly by TE (including dropping endings to words such as “ing”, “ed”); (d) reversals, words in a sentence were read in incorrect sequence by TE; and (e) additions, a word or words that were not in the text were pronounced by TE. When oral reading fluency was assessed TR and TE both had copies of the reading passage for the 1-minute timing. The timer was set for 1-minute by TR, TE was prompted to begin reading aloud when ready, and TR started the timer when TE vocally emitted the first word of the passage. As TE read the passage, TR followed along on his copy of the reading passage. Any errors made by TE resulted in TR placing an (X) above the word (or space if additions occurred). When the timer sounded, signaling that the 1-minute concluded, TR placed a vertical line after the last word TE read. All of the words without an (X) above it were counted and then recorded as correct by TR. All of the words (and spaces) with an (X) above it were counted and then recorded as errors.
Reading Comprehension

Reading comprehension data were collected; using the same procedures in baseline, peer mediated with DI, and peer mediated with DI plus repeated reading conditions. Reading comprehension is a complex cognitive process requiring interaction between the reader and the text so meaning can be constructed from what is read. Reading comprehension probes were administered throughout this study using AIMSWeb maze passages (Appendix J) (Shinn & Shinn, 2002). Maze are modified cloze. A traditional cloze exercise contains a passage with interspersed blanks, and the student must supply a word that logically fits in the blank. A maze (modified cloze) exercise contains a passage with interspersed blanks that are accompanied with answer choices (usually 3 or 4) and the student chooses the best choice (i.e. forced choice).

In this study, reading comprehension was measured by the number of maze items responded to correctly and incorrectly. A maze passage was given to TE by the TR; TR set the timer for 3-minutes and directed TE that he had 3-minutes to silently read the passage and complete as many maze items as he could. When the timer sounded, TE placed a vertical line after the last attempted maze item and then handed the maze passage to TR. An answer key was provided for TR and he graded TE’s responses. TR recorded the number of correct and incorrect maze responses. TE’s responses were compared to a prepared answer key (Appendix K). TE circled the response he believed was correct. Only those responses that were an exact match were scored as correct. All other responses including no responses were scored as incorrect up to the vertical line, indicating the last attempted item.
Reading Achievement

Reading achievement was defined as a participant’s score on a standardized measure. Pretest and posttest data were collected using the Woodcock Reading Mastery Tests- Revised (WRMT) Word Identification, Word Attack, and Passage Comprehension subtests. The total median reliability for the WRMT-R is .97. Additionally, the Slosson Oral Reading Test (SORT) was used. For ages 14 to 18 this test has median reliability of .97. The items on each test are arranged from easiest to most difficult. All participants were tested individually by the experimenter in the conference room.

Woodcock Reading Mastery Tests-Revised

Word Identification. The Word Identification subtest assesses students’ isolated word reading. The test booklet sat in an upright position between the experimenter and participant. The side for the participant contained only the test word(s), and the side for the experimenter contained the test word(s) with the pronunciation(s) printed underneath. Going from left to right the participants read each word aloud. The experimenter followed along scoring words as correct or incorrect on the recording sheet. The test concluded when the participant emitted six consecutive incorrect responses. The experimenter counted the participant’s correct responses for a raw score.

Word Attack. The Word Attack subtest contains nonsense words and assesses students’ decoding skills. The test booklet sat in an upright position between the experimenter and participant. The side, for the participant, contained only the nonsense word(s), and the side, for the experimenter, contained the nonsense word(s) with the pronunciation(s) printed underneath. Going from left to right the participant read each word aloud. The experimenter followed along scoring words as correct or incorrect on the
recording sheet. The test concluded when the participant emitted six consecutive incorrect responses. The experimenter counted the participant’s correct responses for a raw score.

*Passage Comprehension.* The Passage Comprehension subtest contains a series of short reading passages with a key word missing (cloze) from the passage. This subtest assesses students’ comprehension and vocabulary skills. The test booklet sat in an upright position between the experimenter and participant. The side, for the participant, contained only the test passages, and the side, for the experimenter, contained the test passages with correct word responses, incorrect word responses, and words prompting an experimenter query from the student placed under each passage. Going from the top passage to the bottom passage the participant vocalized a word for each passage’s blank. The experimenter followed along scoring words as correct or incorrect on the recording sheet. The test concluded when the participant emitted six consecutive incorrect responses. The experimenter counted the participant’s correct responses for a raw score.

*Slosson Oral Reading Test*

SORT contains 10 lists with of 20 words each. This test assesses students’ word recognition skills. The participant was handed a photocopy of the word lists and directed to the appropriate basal list by the experimenter and told to begin reading each word on the list from the top to the bottom. When one list was completed the participant moved on to the next list until a ceiling was obtained. The assessment stopped when the student made six consecutive errors.
**Reading Attitude**

Reading attitude was defined as the TE’s degree of like or dislike toward reading. To measure TE’s reading attitude a Likert Scale (RALS) consisting of 10 items was administered before and after the intervention (Appendix L). Each item consisted of four levels of agreement (i.e., strongly disagree…strongly agree) that were associated with a number score. The score of each item was summed together for a composite score. The highest possible score on the RALS was 40. The higher a TE’s score, the more positive an attitude he had toward reading. The composite scores of each TE’s RALS before and after the intervention were compared to determine if their reading attitude changed. The experimenter administered this measure. Each TE received a copy of the form. When the experimenter was asked, he read the statement to TE. After all TE’s completed the form, the experimenter had them place their form in a large envelope.

**Social Validity**

Social validity is a subjective, yet necessary, assessment in applied behavior analysis to evaluate the social importance of any intervention (Wolf, 1978). Eliciting consumers (direct and indirect) opinions validate an intervention on three critical levels: the goals of the intervention, the appropriateness of the procedures being used, and the social importance of the effects of the intervention (Wolf, 1978). In this study the opinions of the student participants and the classroom teacher were elicited.

**Student’s Opinions**

A questionnaire was administered to seven out of the eight student participants at the conclusion of the intervention. The questionnaire consisted of five open-ended questions (Appendix M). To maintain anonymity the experimenter gave the
questionnaires to the teacher to distribute and left the room asking the teacher to remind the students not to put their names on the questionnaire. The teacher was asked to place the completed questionnaires in a large envelope without reading the responses.

**Teacher’s Opinion**

Following the intervention, the classroom teacher was asked to answer six open-ended questions to ascertain his opinion of the intervention (Appendix N). As the students completed their questionnaires, the teacher completed his. The teacher printed his name on his questionnaire and placed it in the same envelope as the students.

**Interobserver Agreement**

Interobserver agreement (IOA) data were collected on at least 30% of all assessments of the dependent variables, oral reading fluency and reading comprehension. During oral reading 1-minute timings, the experimenter had a copy of the reading passage and independently marked errors as TE read. An agreement was defined as the experimenter and TR simultaneously listening to TE read a passage and independently marking or not marking the same word read as an error during the 1-minute timing. At the end of the session, the experimenter collected TR’s marked passage and compared it to his marked passage. The experimenter compared each word for agreement or disagreement. Next, the experimenter calculated the total number of agreements. The number of agreements was divided by the number of agreements plus disagreements and multiplied by 100% to obtain a percentage agreement score. The following is the IOA equation that was used:
For reading comprehension, an agreement was defined as the experimenter and TR comparing the completed maze passage of the TE with the answer key and independently recorded the same maze item as correct or incorrect. On the answer key, each maze item was numbered. The experimenter and TR each had a piece of loose leaf paper numbered from one to the number of maze items available (e.g., 1-40). Next to the number on the loose leaf paper the experimenter and TR marked a (+) for correct responses by TE, and a (-) for incorrect responses. The experimenter compared his paper with TR’s paper and recorded the number of agreements. The number of agreements were divided by the number of agreements plus disagreements and multiplied by 100% to obtain a percentage agreement score. The following is the IOA equation used:

\[
IOA = \frac{\text{Agreements}}{\text{Total number of agreements + disagreements}} \times 100\%
\]

Independent Variables

Corrective Reading Program

The Corrective Reading program was used for the reading instruction throughout this study. It is a reading program designed for older students who have not acquired the skills necessary for proficient reading. The Corrective Reading program has two strands. One strand focuses on decoding and the other focuses on comprehension. This study only
used the decoding strand. The *Corrective Reading* decoding strand consists of four levels: A, B1, B2, and C. Depending on which, a level is began with reading skills at a specific level of complexity, and as the student progresses through the level they build on previously taught skills and are taught increasingly difficult reading skills. The *Corrective Reading* program’s levels range from the pre-reader to the seventh grade level (Marchand-Martella, Martella, & Przychodzin-Havis, 2005).

**Cross-Skill Tutoring**

Cross-skill tutoring was the instructional grouping that was utilized in this study. Cross-skill tutoring is a systematic peer tutoring model that involves the pairing of two peers (i.e., tutor and tutee) who read on different reading levels. A tutor and tutee pair is referred to as a dyad. The tutor (TR) was defined as the peer delivering the DI curriculum. The tutee (TE) is defined as the peer receiving instruction.

Tutors were trained to teach the *Corrective Reading* curriculum. The *Corrective Reading* program is scripted. The experimenter explicitly taught TR’s how to use the *Corrective Reading* curriculum. The experimenter modeled how to teach a *Corrective Reading* lesson. TR’s were given multiple opportunities to practice presenting the script (see Appendix O for a sample script). TR’s were taught the phonetic sounds, how to provide social praise for correct responses, and corrective feedback for incorrect responses. Each of these skills was included in the DI materials script. TR’s were trained how to record TE’s responses for oral reading fluency and comprehension questions. The checklist, used to assess procedural integrity during the intervention, was also used during the training sessions (Appendix P). When TR was able to demonstrate all of the tutor behaviors at 100% accuracy, as measured by the experimenter, TR was permitted to
begin instructing his assigned TE. Across all dyads, tutoring sessions using Corrective Reading ranged from 8 to 35. During the intervention, if necessary, the experimenter provided corrective feedback for TR following any session when tutoring behaviors were not implemented correctly.

Repeated Reading

Repeated reading is an instructional strategy used to increase reading fluency, which researchers have found to improve comprehension (Kuhn & Stahl, 2003). Fluency serves as a connector between decoding and comprehension that allows students to increase their overall reading achievement (Carnine et al., 2004). Repeated reading involved TE orally reading a passage to TR, who followed along and recorded errors. Reading passages were respectively at each TE’s independent reading level (i.e., 95% accuracy) (Bursuck & Damer, 2007). For example, TE reading at a third grade level received a reading passage for repeated reading at a third grade level.

Components for conducting the repeated reading included (a) corrective feedback, (b) score charting, and (c) performance feedback (Therrien & Kubina, 2006). Corrective feedback required TR to immediately correct and track any errors (i.e., mispronunciations, substitutions, etc.) made by the TE as he read through modeling and sight word instruction. For example, if TE mispronounced the word “because” while reading, TR would stop him and say, “That word is ‘because’ what word?” Then TE would repeat the correct pronunciation of the word and start at the beginning of the sentence the error was made in and continue reading the passage. If both the tutee and the tutor did not know the pronunciation of a word the experimenter provided the correct pronunciation.
Additionally, TR circled any errors (except deletions) made by TE and when TE completed the reading passage, TR would point to the circled word and ask, “What word?” If TE emitted the word incorrectly, TR would tell him the word and ask for it to be repeated (e.g., “That word is ‘because’ what word?”) and then move on to the next error (if necessary). If TE emitted the word correctly, TR would move on to next error (if necessary) and follow the same procedure.

Score charting, entailed TR marking the number of words read correctly and errors made during the specified amount of time (i.e., 1-minute) on a data collection form (Appendix Q). TR then graphed the number of corrects and the number of errors on graphing paper.

Performance feedback required TR to provide TE with information about the number of words read correctly, and then compare that with TE’s previous performance (e.g., “This time you read 110 words per minute, and last time you read this passage you read 100 words per minute. Fantastic job, that’s 10 more words!”). When implementing repeated readings, it is suggested that students reread a passage until a predetermined criterion for oral reading has been achieved (maximum of 5 rereads) (Therrien & Kubina, 2006). However, Dowhower (1989) indicates that when students are reading at a relatively high rate with few errors, setting a specific number of rereadings, as opposed to setting a criterion, is appropriate and that maximum fluency can be reached when there has been at least three rereadings. Therefore, in this study no criterion was set and a limit of three was placed on the number of times a passage was read.
Procedural Integrity

Procedural integrity was defined as the number of steps completed accurately per session by the tutor and experimenter (Grasham, Gansle, & Noell, 1993). It is a measure critical for demonstrating the precise implementation of an intervention which is one of the criteria necessary for demonstrating a functional relationship (Peterson, Homer, & Wonderlich, 1982). Procedural integrity was assessed with the (a) experimenter during the training of students identified as TR’s and (b) TR’s throughout all conditions of this study.

Tutors were trained by the experimenter. During training sessions, the primary observer was the experimenter. The experimenter completed a procedural integrity checklist (Appendix R) for each training session. A teaching assistant served as the secondary observer and independently completed a procedural integrity checklist for one training session (25%).

During all conditions of this study a procedural integrity checklist (Appendix P) was completed daily by TR, who served as the primary observer. The experimenter, who served as the secondary observer, independently completed a tutor procedural integrity checklist.

*Procedural Integrity Checklist*

The training procedural integrity checklist was a 6-item form, identifying the steps for implementing training sessions (Appendix R). The checklist was used to assess if the experimenter conducted the predetermined steps for training TR’s with fidelity.

During each training session for TR’s, the experimenter used the training checklist to assess his own behavior. During one training session, both the experimenter
and a teaching assistant used the training procedural integrity checklist to assess the experimenter’s behavior. Following the training session, the experimenter’s checklist was compared with the teaching assistant’s checklist. Procedural integrity was calculated by dividing agreements by the total number of agreements plus disagreements. An agreement was defined as an item being checked as yes or no, by the experimenter and teaching assistant, on the training procedural checklist. The following is the training procedural integrity equation:

\[
\text{Procedural Integrity} = \frac{\text{Agreements}}{\text{Agreements} + \text{Disagreements}} \times 100\%
\]

The tutor procedural integrity checklist was a 13-item form, identifying the steps for implementing a tutoring session (Appendix P). However, the number of behaviors that were monitored by the observers depended on the study condition (i.e., baseline, CR, etc.). The checklist was used to assess if TR’s conducted the predetermined steps for tutoring with fidelity.

Procedural integrity was monitored in every condition of this study by the primary observer (i.e., tutor). The experimenter served as the secondary observer during sessions in the baseline (BL), Corrective Reading (CR), and Corrective Reading plus repeated reading (CR+RR) conditions, using the tutor procedural integrity checklist. Procedural integrity for each condition was calculated by dividing the number of agreements by the number of agreements plus disagreements. The following is the tutor procedural integrity equation:
Procedural Integrity = \frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100\%

Experimental Design

A multiple probe across subjects design was used in this study to examine the effects of peer mediated instruction on the reading fluency and comprehension of TE’s (Horner & Baer, 1978). The multiple probe design was derived from the multiple baseline design (Baer, Wolf, & Risley, 1968). Multiple baseline designs are of particular value because they can be utilized for interventions in which the reversal of a behavior is not desirable, ethical, or possible. When using multiple baseline designs the intervention is systematically implemented in a stepwise fashion across multiple behaviors, settings, or subjects. The baseline data of each [behavior, setting, subject] varies based on evidence that the intervention is effective. That is, a response is established for change evaluation (e.g., baseline data), the intervention is applied to one response and the experimenter notes change in that baseline data but not in the baseline data of responses that did not receive the intervention. The initial baseline in which the intervention was applied is not reversed and the intervention is applied to the next baseline. This process continues for as many baselines as are being evaluated. As the intervention is applied to each response and baseline data change, further evidence of the effectiveness of the intervention is being established (Baer et al.). The multiple probe design varies from the multiple baseline design in that successive baseline data points are not collected. Instead,
intermittent baseline data are collected on a response to establish the current level of performance for change evaluation (Horner & Baer).

In this study, following the pre-intervention assessments, baseline data were collected on each TE. During baseline, data were collected on TE’s reading fluency and comprehension. However, reading fluency was the primary variable used for change evaluation. For each TE, baseline data were used to evaluate changes as the intervention was applied in subsequent conditions. Using multiple probes across subjects design, the intervention was introduced to TE’s in a stepwise fashion. That is, the intervention was introduced to the first TE and when there was an observable change in reading fluency, the intervention was introduced to the second TE and so on through the fourth TE.

The tutor recorded the number of words read correctly and the errors made by his respective TE during 1-minute oral readings of a passage at the TE’s reading level. When stable reading fluency occurred, that TE entered the second condition, peer-mediated Corrective Reading (CR), while baseline conditions remained in effect for the other TE’s. When stable responding was attained in the CR condition, the tutee entered the third condition, CR and repeated reading (CR+RR). Each tutee followed this sequence in a staggered fashion to satisfy the logic of the multiple baseline design. That is, after the intervention is provided for the first TE, his data points served as prediction for the remaining TE’s, and the remaining TE’s baseline data verified a functional relation between the intervention and first TE’s behavior change.
Materials

Corrective Reading

The Corrective Reading program materials used in this study were levels B1 and B2 from the decoding strand. Levels B1 and B2 are the Corrective Reading program’s third and second most complex (respectively) levels out of the four.

AIMSWeb Passages

AIMSWeb is a computer-based progress monitoring system that has downloadable reading passages from kindergarten up to the eighth grade. Fluency reading passages and maze passages were used in this study. (Appendices H and K)

Great Leaps Reading Passages

Reading passages from the Great Leaps Reading Program were used in this study to assess TE’s reading fluency (see Appendix I).

Data Collection Form

The data collection form was used by TR’s to keep track of the number of points obtained by the TE for his desired behaviors (see Appendix Q). The form was also used to record the TE’s fluency and comprehension data.

Timer

A Taylor© timer with a countdown setting was used to keep time during oral reading fluency and comprehension measurements.

Pencils

Standard Number 2 pencils were used.

Dry Erase Board and Markers

A 12 X 10 inch dry erase board and Expo® dry erase markers were used.
Graph Paper

8 ½ X 11 inch graph paper was used by TR’s to make a line graph and provide visual stimuli for TE’s to monitor their progress.

File Box

A 12 X 9 X 10 inch file box contained data from the participants and was used for easy transport of that data.

Reinforcers

The experimenter provided reinforcers for the participants if desirable behaviors were displayed (Appendix S). For TE’s, reinforcement was contingent upon appropriate social skills and performance during a tutoring session. For TR’s, reinforcement was contingent upon appropriate social skills and intervention implementation. Prior to this study the teacher was asked what tangibles would be appropriate reinforcers and then the participants were asked what tangibles they would like as a reward when they display appropriate behavior.

Procedures

Pre-Intervention Assessment

All participants (i.e. tutors and tutees) in this study were assessed using the Woodcock Reading Mastery Tests-Revised Form G (WRMT-R) (Woodcock, 1987) Word Identification, Word Attack, and Passage Comprehension subtests, the Slosson Oral Reading Test (SORT) (Slosson, 1990), and The Corrective Reading Placement Test (CRPT) (Englemann et al., 1999)

Participants in this study were assigned the role of tutor (TR) or the role of tutee (TE). To serve as TR, the student had to meet the following criteria: (a) he was selected
by the teacher as an acceptable participant, (b) he returned a signed parent/guardian consent form permitting his participation in the study (Appendix D), and (c) his reading achievement on the WRPT and SORT placed his performance among the top four participants on those measures and according to the CRPT he did not need Corrective Reading.

To serve as TE, participants must have met the following criteria: (a) he was selected by the teacher as an acceptable participant who can benefit from the supplemental reading instruction, (b) he returned a signed parent/guardian consent form permitting his participation in the study (Appendix D), and (c) his performance on the WRPT and SORT placed him among the four lowest performers on those measures and according to the CRPT he needed Corrective Reading.

Tutor Training

The four tutors were trained simultaneously in three phases across four days prior to starting data collection: (a) introduction to Direct Instruction Corrective Reading, (b) phonological awareness, and (c) implementing Corrective Reading and 1-minute timings.

Direct Instruction Corrective Reading

During the introductory phase the experimenter explained to TR’s Direct Instruction (DI) and its purpose. The experimenter provided a short oral overview of DI and how it has been effective with different populations of students. The experimenter showed the video “Introducing Direct Instruction” (SRA, 2002) to TE’s as a group. This short video (10 min.) provided an overview of DI reading and its benefits. The experimenter then led a discussion about DI with TR’s. The discussion examined elements of DI that were similar to and different from their learning experiences at
school. The experimenter then pointed out some characteristics of DI. First, the lessons are scripted meaning that the DI instructor has before him a written narrative of what to say for lesson instruction. Second, the experimenter highlighted that DI is designed so that the learner has very few errors during instruction. Third, when errors do occur the instructor immediately points out the error, provides the correct response, and then has the student make the correct response. Finally, during the discussion the experimenter asked TR’s if they had any questions about DI. The experimenter answered any questions posed by TR’s. This concluded the first phase of tutor training.

**Phonological Awareness**

The second phase consisted of the experimenter introducing the phonological skills needed for teaching DI. The experimenter and TR’s had a pronunciation form, so the experimenter could provide explicit phonics instruction and allow for TR’s to practice (Appendix T). The pronunciation form divides the sounds into continuous sounds and stop sounds.

Stop sounds, the air is completely blocked before it is expelled either because the lips come together as with /p/ or because the tongue touches the roof of upper mouth as when saying /d/. This air blockage accounts for the higher level of difficulty in learning words that begin with stop sounds. Avoiding schwa endings is also more difficult with stop sounds. With continuous sounds, also known as continuants, the air flow does not stop as the sound is pronounced, so the sound can be held as long as some air remains in the lungs. When first reading a continuous letter sound the teacher holds the sound for several seconds. (Bursuck & Damer, 2007, p. 23).

The experimenter modeled each of the sounds by presenting the letter(s) and making the appropriate sound for that letter(s). For example, the experimenter wrote on the blackboard the letter “A” and said the short “a” sound (holding the continuous sound
while keeping his finger under the letter). The experimenter had TR’s say the sound with him. The experimenter had TR’s chorally respond by saying the sound when he pointed to the letter and continued to hold the sound until he removed his finger from the letter. That is, the experimenter touched the letter and removed his finger immediately for stop sounds and held his finger on the letter for two seconds for continuous sounds. The experimenter introduced each sound using this systematic instructional approach. When TR’s were able to say each of the long and short vowel sounds and the sounds of each single consonant correctly TR’s were ready for the final phase of the training.

Corrective Reading Implementation and 1-minute Timings

The third phase of the training involved practicing the instructional script and conducting 1-minute timings. The experimenter showed the DI video “Following Scripted Lessons” (SRA, 2002). The video highlighted the instructional pace, how to reinforce correct responses by learners, and how to correct errors. The experimenter taught a lesson to TR’s using the DI materials. He modeled how to praise learners by saying things such as “Correct! You got that right!”, “Good job that is the correct sound,” “Nice reading!” The experimenter also modeled how to correct errors. For example, if a learner said “ran” when the word is “sand” the experimenter modeled error correction by saying, “that word is ‘sand,’ what word?” When the learner repeated, ‘sand’ the experimenter praised the learner for giving the correct response. The experimenter then had TR’s practice teaching a lesson to each other while he walked around and monitored their performance to ensure the lesson was being implemented correctly.

The tutor was trained to set the stopwatch for 1-minute and provide 1-minute timing instructions for TE. With the experimenter monitoring, TR’s practiced 1-minute
timings with each other. TR’s were trained to start the timer when the first word was read; appropriately mark errors; and vertical line placement when the stopwatch sounded. Tutors practiced how to calculate the total words read minus errors to establish the number of words read correctly. TR’s were then trained to record data on the data sheet. Finally, TR’s were taught how to graph data on graph paper.

The experimenter assessed each TR individually while they conducted a mock session with another TR. The experimenter used the tutor procedural integrity checklist to monitor the accuracy of the TR’s behavior. TR’s needed to implement each step of the procedural integrity checklist with 100% accuracy to achieve the mastery level needed for tutoring.

Once tutoring started, if a TR scored below 90% accuracy he was retrained, after that session, to ensure the intervention was implemented with fidelity in subsequent sessions. Any skill erroneously performed by TR during the tutoring session was practiced by TR. Next, TR had to teach a lesson to the experimenter and implement each step of the procedural integrity checklist with 100% accuracy.

Repeated Readings

Tutors were trained in the repeated reading strategy just before that intervention was implemented for their respective TE. TR’s respective TE assisted in the repeated reading training as the experimenter provided corrective feedback.

During the first reading of the passage TR was trained to correct TE each time an error was made and circle the word error. For example, if the sentence read “John went to the store.” and TE read, “John walked to the store.” the tutor was trained to point to the error and say, “that word is ‘went’ what word?” Following the TE’s reply, TR had the TE
read the entire sentence that contained the error. This was done each time an error was made until the entire passage was read. After the entire passage was read TR turned his paper around for his TE to see and pointed to each circled word asking, “what word?” If TE did not know the word TR would supply the correct word and have TE repeat the word. If both the tutee and tutor did not know the correct pronunciation of a word the experimenter would provide the correct pronunciation for them. Following this step TR would erase all marks from his reading passage.

For the second and third reading of the passage, the TR conducted 1-minute timings as they were previously trained. Additionally, on the third reading of the passage, TR practiced praising the TE and provided performance feedback (e.g., “in the first 1-minute timing you read 100 words and this time you read 115 words, that’s 15 extra words, great job!”). The TR had to demonstrate 100% accuracy on all repeated reading skills, as designated on the tutor procedural integrity form (Appendix P) before implementing the repeated reading component of the intervention to his TE.

Study Conditions

Using a multiple probes across subjects design, each TE’s behavior was monitored across four conditions: (a) baseline, (b) Corrective Reading, (c) Corrective Reading plus repeated readings, (d) maintenance. Additionally, pretest and posttest measures were obtained from TE’s.

Baseline

During baseline condition TR did not administer the intervention. The TR placed a passage in front of TE and prompted him to begin reading. As TE read aloud TR read
along silently from his copy of the passage, tracking any errors made by TE. The TE was permitted to read the passage for 1-minute. When the timer sounded TR placed a vertical line after the last word read by the tutee. The tutor completed the data collection form (Appendix Q) and graphing of the data.

Reading comprehension probes were administered throughout the study. The tutor placed a maze passage in front of TE and directed him to begin. The tutee was given 3-minutes to complete the maze passage. When the timer sounded, TR corrected the TE’s maze passage, using an answer key provided to him by the experimenter. The data were written on the data collection form as the number of maze items responded to correctly and the number of maze items responded to incorrectly.

Corrective Reading

During the Corrective Reading (CR) condition TR first delivered the appropriate lesson to TE. Following the lesson, TR conducted a 1-minute oral reading timing with TE, following the same procedures as the baseline condition. Additionally, when reading comprehension probes were administered, its procedures were done identical to that of the baseline condition.

Corrective Reading + Repeated Reading

During the CR + repeated reading (RR) condition TE received peer-mediated successive CR lessons and engage in RR. Three was the total number of times a passage was read. During the first reading of the passage, TR provided corrective feedback each time TE made an error and circled the word error. This was done each time an error was made until the entire passage was read. After the entire passage was read TR turned his
paper around for TE to see and pointed to each circled word asking, “what word.” If TE did not know the word TR would supply the correct word and have TE repeat the word. Following this step TR would erase all marks from his reading passage.

For the second and third reading of the passage, TR conducted 1-minute timings in the same manner 1-minute timings were collected in the previous conditions. Additionally, when reading comprehension probes were administered, it was done after the 1-minute timings and its procedures were done identical to that of the previous conditions.

**Maintenance**

Maintenance was defined as a sustained level of reading skills after the intervention has been terminated (Cooper, Heron, & Heward, 2007). Maintenance probes of gains made in oral reading fluency and reading comprehension were conducted two weeks after the peer tutoring sessions. Reading fluency and comprehension probes were conducted by TR’s using the same procedures as those described in the baseline condition.

**Pretest and Posttest Measurement**

Pretest and posttest data were collected using the *Woodcock Reading Mastery Tests- Revised* (WRMT) Word Identification, Word Attack, and Passage Comprehension subtests and the Slosson Oral Reading Test. The experimenter followed the author recommended procedures when administering the assessments. The reading attitude Likert Scale (RALS) (Appendix L) was administered to all four of the TE’s (TR’s were
not administered this measure) prior to and after the study as well to assess any changes in participants’ attitude about reading.
CHAPTER 4

RESULTS

This chapter presents interobserver agreement, procedural integrity, pre-post-assessment, oral reading fluency, comprehension, generalization, and social validity data.

Interobserver Agreement

Interobserver agreement data were collected throughout this study on oral reading fluency and reading comprehension. IOA data were reported in baseline (BL), Corrective Reading (CR), Corrective Reading plus Repeated Reading (CR+RR), and maintenance (MAIN) conditions for oral reading fluency and reading comprehension.

IOA on Oral Reading Fluency

The TR’s served as the primary observers and the experimenter served as the secondary observer to assess IOA on oral reading fluency during all conditions. The IOA data are summarized for each TE during each condition in Table 4.1.

IOA data for TE1 were collected on two out of five (40%) probes during the baseline condition, eight out of 22 (36.7%) sessions during the CR condition, six out of 13 (46.2%) sessions during CR+RR condition, and one out of two (50%) probes during MAIN condition. Overall, IOA data were collected on 41.5% of the sessions. Across all conditions the mean agreement was 98.5% (range = 93.8%-100%).
IOA data for TE2 were collected on three out of five (60%) probes during the baseline condition, 7 out of 20 (35%) sessions during the CR condition, 4 out of 11 (36.4%) sessions during CR+RR condition, and one out of two (50%) probes during MAIN condition. Overall, IOA data was collected on 39.5% of the sessions. Across all conditions the mean agreement was 99.1% (range=96.9%-100%).

IOA data for TE3 were collected on three out of six (50%) probes during the baseline condition, six out of 21 (28.6%) sessions during the CR condition, five out of six (83.3%) sessions during CR+RR condition, and one out of two (50%) probes during MAIN condition. Overall, IOA data was collected on 42.9% of the sessions. Across all conditions the mean agreement was 98.8% (range=95.9%-100%).

IOA data for TE4 were collected on four out of seven (57.1%) probes during the baseline condition, three out of eight (37.5%) sessions during the CR condition. Overall, IOA data was collected on 46.7% of the sessions. Across all conditions the mean agreement was 96.7% (range=93.5%-100%). Due to attrition, TE4 did not enter the final two conditions.
Table 4.1: IOA percentages on oral reading fluency. *Note.* Numbers in parentheses indicate range.

<table>
<thead>
<tr>
<th>Tutee</th>
<th>BL</th>
<th>CR</th>
<th>CR+RR</th>
<th>MAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE1</td>
<td>99.2</td>
<td>96.8</td>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>(98.4-100)</td>
<td>(93.8-99.2)</td>
<td>(96.2-99.4)</td>
<td>-</td>
</tr>
<tr>
<td>TE2</td>
<td>99.5</td>
<td>98.3</td>
<td>98.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>(98.5-100)</td>
<td>(95.9-100)</td>
<td>(98.6-99)</td>
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<td>TE3</td>
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<td>97.4</td>
<td>97.9</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>(97.6-100)</td>
<td>(94.5-100)</td>
<td>(96.8-98.3)</td>
<td>-</td>
</tr>
<tr>
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<td>97.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(93.5-100)</td>
<td>(94.5-100)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Combined</td>
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<td>97.8</td>
<td>98.2</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>(93.5-100)</td>
<td>(93.8-100)</td>
<td>(96.2-99)</td>
<td>-</td>
</tr>
</tbody>
</table>

*IOA on Reading Comprehension*

The TR’s served as the primary observer and the experimenter served as the secondary observer to assess IOA on reading comprehension probes during all conditions. The IOA data are summarized for each TE during each condition in Table 4.2.

Reading comprehension IOA data for TE1 were collected on two out of two (100%) probes during the baseline condition, four out of five (80%) probes during the CR condition, two out of three (66.7%) probes during CR+RR condition, and one out of one (100%) probe during MAIN condition. Overall, IOA data was collected on 81.8% of the sessions. Across all conditions the mean agreement was 100%.
Reading comprehension IOA data for TE2 were collected on two out of two (100%) probes during the baseline condition, three out of four (75%) probes during the CR condition, three out of three (100%) probes during CR+RR condition, and one out of one (100%) probes during MAIN condition. Overall, IOA data was collected on 90% of the sessions. Across all conditions the mean agreement was 100%.

Reading comprehension IOA data for TE3 were collected on three out of three (100%) probes during the baseline condition, three out of four (75%) probes during the CR condition, two out of two (100%) probes during CR+RR condition, and one out of one (100%) probe during MAIN condition. Overall, IOA data was collected on 90% of the sessions. Across all conditions the mean agreement was 99.2% (range=94.7%-100%).

Reading comprehension IOA data for TE4 were collected on two out of four (50%) probes during the baseline condition, one out of one (100%) probes during the CR condition. Overall, IOA data was collected on 100% of the sessions. Across all conditions the mean agreement was 100%. Due to attrition, TE4 did not enter the final two conditions.

<table>
<thead>
<tr>
<th>Tutee</th>
<th>BL</th>
<th>CR</th>
<th>CR+RR</th>
<th>MAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>T2</td>
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<td>100</td>
<td>100</td>
<td>100</td>
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<td>(97.5-100)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
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<td>100</td>
<td>-</td>
<td>-</td>
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<td></td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Combined</td>
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<td>99.6</td>
<td>100</td>
<td>100</td>
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<tr>
<td></td>
<td>(94.7-100)</td>
<td>(97.5-100)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4.2: IOA percentages on reading comprehension. *Note.* Numbers in parentheses indicate range.
Procedural Integrity

Procedural integrity was assessed in one of four (25%) TR training sessions with a teaching assistant who served as the secondary observer. Procedural integrity was calculated by comparing the primary observer’s checklist with the secondary observer’s checklist and then dividing agreements by agreements plus disagreements. Procedural integrity was calculated at 100% for TR training.

The procedural integrity data for each dyad (i.e., TR and TE pair) are summarized in Table 4.3. Procedural integrity data for dyad 1 were collected on one out of five (20%) sessions during the baseline condition, seven out of 22 (31.8%) sessions during the CR condition, and six out of 13 (46.2%) sessions during the CR+RR condition. Overall, procedural integrity data were collected on 35% of the sessions. Across all three conditions the mean procedural integrity was 95% (range=81.8%-100%).
Table 4.3: Procedural integrity percentages. *Note.* Numbers in parentheses indicate range.

<table>
<thead>
<tr>
<th>Dyad</th>
<th>BL</th>
<th>CR</th>
<th>CR+RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>92.2</td>
<td>97.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(81.8-100)</td>
<td>(92.3-100)</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>95.5</td>
<td>100</td>
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<td></td>
<td></td>
<td>(81.8-100)</td>
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<tr>
<td>3</td>
<td>100</td>
<td>96.1</td>
<td>92.3</td>
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<tr>
<td></td>
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<td>(81.8-100)</td>
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<td>4</td>
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</tr>
<tr>
<td>Combined</td>
<td>100</td>
<td>96</td>
<td>96.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(92.2-100)</td>
<td>(92.3-100)</td>
</tr>
</tbody>
</table>

Procedural integrity data for dyad 2 were collected on 2 out of 5 (40%) sessions during the baseline condition, 6 out of 20 (30%) sessions during the CR condition, and 4 out of 11 (36.4%) sessions during the CR+RR condition. Overall, procedural integrity data were collected on 33.3% of the sessions. Across all three conditions the mean procedural integrity was 97.7% (range=81.8%-100%).

Procedural integrity data for dyad 3 were collected on 2 out of 6 (33.3%) sessions during the baseline condition, 7 out of 21 (33.3%) sessions during the CR condition, and 1 out of 6 (16.7%) sessions during the CR+RR condition. Overall, procedural integrity data were collected on 30.3% of the sessions. Across all three conditions the mean procedural integrity was 96.5% (range=81.8%-100%).
Procedural integrity data for dyad 4 were collected on three out of seven (42.9%) sessions during the baseline condition, two out of eight (25%) sessions during the CR condition. Overall, procedural integrity data was collected on 33.3% of the sessions. Across both conditions the mean procedural integrity was 100%. Due to attrition, dyad 4 did not enter the final condition.

Tutee 1

Baseline data for each TE were collected prior to the peer-mediated Direct Instruction. After five probes in the baseline condition, TE1 was the first TE to enter the experimental condition. TE1 participated in 35 experimental sessions throughout the study. TE1 was tutored by TR1 for 21 sessions. TR1 was discharged from the facility after session 26. TE1 received tutoring from TR4 from sessions 27 to 40 because TE4 was also discharged at approximately the same time as TR1.

Pretest & Posttest Measures

Prior to and following the study the Woodcock Reading Mastery Tests- Revised (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, the Slosson Oral Reading Test (SORT), and the reading attitude Likert Scale (RALS) were administered to TE1. He participated in the study for approximately three and one half months. Therefore, a three and one half month time period separates when the pretest and posttest measures were administered. Table 4.4 displays TE1’s pretest and posttest scores on each measure. Appendix U provides the exact dates when the participants were administered the pretest and posttest measures.
Woodcock Reading Mastery Tests-Revised

*Word identification.* On the pretest measure, TE1’s grade equivalent was 3.9, ranking his as the second lowest score among tutees on this measure. On the posttest measure his grade equivalent was 4.4. From pretest to posttest TE1 had a 0.5 grade equivalent gain. Across all TE’s, his gains were the second largest on the WI measure.

*Word attack.* On the pretest measure, TE1’s grade equivalent was 3.2, ranking his as the second lowest score among tutees on this measure. On the posttest measure his grade equivalent was 4.6. From pretest to posttest TE1 had a 1.4 grade equivalent gain. Among all TE’s, his gains were the largest on the WA measure.

*Passage comprehension.* On the pretest measure, TE1’s grade equivalent was 3.6, ranking him as the second lowest performer on this measure, compared to the other TE’s. On the posttest measure his grade equivalent was 4.1. From pretest to posttest TE1 had a 0.5 grade equivalent gain. Across all TE’s, his gains were tied as the smallest on the PC measure.

Slosson Oral Reading Test

On the pretest measure, TE1’s grade equivalent was 4.0, ranking his as the second lowest score among tutees on this measure. On the posttest measure his grade equivalent was 4.8. From pretest to posttest TE1 had a 0.8 grade equivalent gain. Among all TE’s, his gains were second largest on the SORT measure.

Reading Attitude Likert Scale

On the pretest measure, TE1’s composite score was 26 points, which was the second lowest score on this measure, compared to the other TE’s. On the posttest
measure his composite score was 33. From pretest to posttest TE1 had a 7-point gain.

Across all TE’s, his gains were the largest on the RALS measure.
Table 4.4: TE’s results from the pretest and posttest measures. *Note.* Grade equivalent scores are indicated (raw scores are indicated in the parentheses). WRMT = Woodcock Reading Mastery Test-Revised; SORT = Slosson Oral Reading Test; RALS = Reading Attitude Likert Scale; WI = Word Identification; WA = Word Attack; PC = Passage Comprehension.
Oral Reading Fluency

During all conditions, 1-minute timings were conducted with TE1 to assess his oral reading fluency.

Baseline

Five oral reading fluency probes were conducted with TE1 during baseline. Baseline data show that TE1’s range of words read correctly was 95-114 with a mean of 103.4. His oral reading errors data range was 3-21 with a mean of 13 (Figure 4.1). TE1’s data reveal that a sharp increase in the number of oral reading errors occurred in the last three oral reading fluency probes.
Figure 4.1: Oral reading fluency multiple probe across participants.

Continued
Figure 4.1 continued.
Corrective Reading

The CR experimental condition began on session six. A total of 22 sessions were conducted during the CR condition. Visual analysis of TE1’s data reveal an increasing trend in the CR condition compared to responding in the baseline condition (Figure 4.1). TE1’s range of words read correctly was 101-150 with a mean of 124.6. His oral reading errors data range was 3-14 with a mean of 6.5. Data overlap of the number of words read correctly occurred in sessions seven (101), 12 (114), 16 (110), and 23 (114). That is, the number of words read correctly in the CR condition was within the range of words read correctly in the baseline condition.

Corrective Reading plus Repeated Reading

The CR+RR experimental condition began on session 28. A total of 13 sessions were conducted during the CR+RR condition. Visual analysis of TE1’s data reveal a sharply increasing trend in the CR+RR condition compared to responding in the baseline and CR conditions (Figure 4.1). TE1’s range of words read correctly in the CR+RR condition was 158-212 with a mean of 185.1. His oral reading errors data range was 0-9 with a mean of 4.1. Data from the first 1-minute timing to the second 1-minute timing indicates a mean increase of 16.8 words read correctly and a mean increase of 0.1 errors (Figure 4.2). No overlap of words read correctly occurred in the CR+RR condition with the previous two conditions (i.e. BL and CR).
Figure 4.2. TE1’s repeated reading data. Note. Shows the number of words read correct and errors made in 1-minute timings.

Maintenance

During the MAIN condition two oral reading fluency probes were recorded. The MAIN condition occurred two weeks after the final experimental condition. MAIN data show that TE1’s range of words read correctly was 160-174 with a mean of 167. His oral reading errors data range was 4-6 with a mean of 5 (Figure 4.1). The MAIN data reveal that the oral reading fluency level of TE1 maintained at a level higher than that during the BL condition.
Reading Comprehension

During all conditions reading comprehension probes were conducted to measure any changes. Maze passages were used to assess reading comprehension. Overall, there was an increase in the number of maze items answered correctly from baseline to the experimental conditions (Figure 4.3).

Baseline

During baseline, two reading comprehension probes were conducted with TE1. Data display that TE1’s range of maze items answered correctly was 11 to 14 with a mean of 12.5. His range of maze items answered incorrectly was 0 to 5 with a mean of 2.5 (Figure 4.3).

Corrective Reading

During the CR condition, five reading comprehension probes were conducted with TE1. Data display that TE1’s range of maze items answered correctly was 15 to 21 with a mean of 15.2. His range of maze items answered incorrectly was 1 to 4 with a mean of 2.6 (Figure 4.3).

Corrective Reading plus Repeated Reading

During the CR+RR condition, three reading comprehension probes were conducted with TE1. Data display that TE1’s range of maze items answered correctly was 7 to 23 with a mean of 17.3 (Figure 4.3).
**Maintenance**

During MAIN, one reading comprehension probe was conducted. TE1 attempted 20 maze items. He responded correctly to 16 maze items and incorrectly to 4 maze items (Figure 4.3).
Figure 4.3: Tutees’ reading comprehension probes across conditions. *Note.* Shows the number of correct and incorrect maze items in 3-minutes.
Figure 4.3: continued

Maze item responses in 3-minutes

- Correct
- Incorrect
Tutee 2

Baseline data for each TE were collected prior to the peer-mediated Direct Instruction. TE2 was the second TE who entered the experimental condition after five probes in the baseline condition. TE2 participated in 31 experimental sessions throughout the study.

Pretest and Posttest Measures

Prior to and following the intervention the *Woodcock Reading Mastery Tests-Revised* (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, the *Slosson Oral Reading Test*, and the reading attitude Likert Scale (RALS) were administered to TE2. He participated in the study for approximately three and one half months. Therefore, a three and one half month time period separates when the pretest and posttest measures were administered. Appendix U provides the exact dates when the participants were administered the pretest and posttest measures. Table 4.4 displays TE2’s pretest and posttest scores on each measure.

*Woodcock Reading Mastery Tests-Revised*

*Word identification*. On the pretest measure, TE2’s grade equivalent was 5.3, ranking his as the second highest score among tutees on this measure. On the posttest measure his grade equivalent was 6.4. From pretest to posttest TE2 had a 1.1 grade equivalent gain. Across all TE’s, his gains were tied as largest on the WI measure.

*Word attack*. On the pretest measure, TE2’s grade equivalent was 3.8, ranking his as the second highest score among tutees on this measure. On the posttest measure his
grade equivalent was 5.1. From pretest to posttest TE2 had a 1.3 grade equivalent gain. Among all TE’s, his gains were the second largest on the WA measure.

*Passage comprehension.* On the pretest measure, TE2’s grade equivalent was 4.1, ranking him as the second highest performer on this measure, compared to the other TE’s. On the posttest measure his grade equivalent was 5.6. From pretest to posttest TE2 had a 1.5 grade equivalent gain. Across all TE’s, his gains were the largest on the PC measure.

*Slosson Oral Reading Test*

On the pretest measure, TE2’s grade equivalent was 6.7, ranking his as the second highest score among tutees on this measure. On the posttest measure his grade equivalent was 7.8. From pretest to posttest TE2 had a 1.1 grade equivalent gain. Among all TE’s, his gains were the largest on the SORT measure.

*Reading Attitude Likert Scale*

On the pretest measure, TE2’s composite score was 29 points, ranking his reading attitude score as the highest, compared to the other TE’s. On the posttest measure his composite score was 34. From pretest to posttest TE1 had a 5 point gain. Across all TE’s, his gains were tied as the second on the RALS measure.

*Oral Reading Fluency*

During all conditions, 1-minute timings were conducted with TE2 to assess his oral reading fluency.
Baseline

Five oral reading fluency probes were conducted with TE2 during baseline. Baseline data show that TE2’s range of words read correctly was 62-102 with a mean of 73.4. His oral reading errors data range was 1-5 with a mean of 2.4 (Figure 4.1). TE2’s data reveal that a decrease in the number of words read correctly occurred in the last three oral reading fluency probes.

Corrective Reading

The CR experimental condition began on session 10. A total of 20 sessions were conducted during the CR condition. Visual analysis of TE2’s data reveal a sharply increasing trend in the CR condition compared to responding in the baseline condition (Figure 4.1). TE2’s range of words read correctly was 77-177 with a mean of 137.9. His oral reading errors data range was 1-9 with a mean of 3.9. Data overlap of the number of words read correctly occurred in session 10 (77). That is, the number of words read correctly in the CR condition was within the range of words read correctly in the baseline condition.

Corrective Reading plus Repeated Reading

The CR+RR experimental condition began on session 30. A total of 11 sessions were conducted during the CR+RR condition. Visual analysis of TE1’s data reveal a sharply increasing trend in the CR+RR condition compared to responding in the baseline and CR conditions (Figure 4.1). TE2’s range of words read correctly in the CR+RR condition was 167-231 with a mean of 202.5. His oral reading errors data range was 3-7 with a mean of 5.1. Data from the first 1-minute timing to the second 1-minute timing
indicates a mean increase of 28.4 words read correctly and a mean decrease of 0.5 errors (Figure 4.4). Data overlap of the number of words read correctly occurred in session 32 (167). That is, the number of words read correctly in the CR+RR condition was within the range of words read correctly in the CR condition.

Figure 4.4: TE2’s repeated reading data. Note. Shows the number of words read correct and errors made in 1-minute timings.

**Maintenance**

During the MAIN condition two oral reading fluency probes were recorded. The MAIN condition occurred two weeks after the final experimental condition. MAIN data show that TE2’s range of words read correctly was 160-161 with a mean of 160.5. His
oral reading errors data range was 3-8 with a mean of 3.5 (Figure 4.1). The MAIN data reveal that the oral reading fluency level of TE2 maintained at a level higher than that during the BL condition.

Reading Comprehension

During all conditions reading comprehension probes were conducted to measure any changes. Maze passages were used to assess reading comprehension. Overall, there was improvement in reading comprehension across the conditions (Figure 4.3).

Baseline

During baseline, two reading comprehension probes were conducted with TE2. Data display that TE2’s range of maze items answered correctly was 6 to 13 with a mean of 9.5. His range of maze items answered incorrectly was 0 to 1 with a mean of 0.5 (Figure 4.3).

Corrective Reading

During the CR condition, four reading comprehension probes were conducted with TE2. Data display that TE2’s range of maze items answered correctly was 5 to 24 with a mean of 13.3. His range of maze items answered incorrectly was 0 to 1 with a mean of 0.3 (Figure 4.3).

Corrective Reading plus Repeated Reading

During the CR+RR condition, three reading comprehension probes were conducted with TE2. Data display that TE2’s range of maze items answered correctly was 14 to 24 with a mean of 18.3. In each probe during this condition TE2 all attempted maze items correctly (Figure 4.3).
Maintenance

During MAIN, one reading comprehension probe was conducted. TE2 attempted 19 maze items. He responded correctly to 18 maze items and incorrectly to 1 maze items (Figure 4.3).

Tutee 3

Baseline data for each TE were collected prior to the peer-mediated Direct Instruction. TE3 was the third TE who entered the experimental condition after six probes in the baseline condition. TE3 participated in 27 experimental sessions throughout the study.

Pretest & Posttest Measures

Prior to and following the intervention the *Woodcock Reading Mastery Tests-Revised* (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, the *Slosson Oral Reading Test*, and the reading attitude Likert Scale (RALS) were administered to TE3. He participated in the study for approximately three and one half months. Therefore, a three and one half month time period separates when the pretest and posttest measures were administered. Exact dates when the participants were administered the pretest and posttest measures are presented in Appendix U. Table 4.4 displays TE3’s pretest and posttest scores on each measure.

*Woodcock Reading Mastery Tests-Revised*

*Word identification.* On the pretest measure, TE3’s grade equivalent was 2.3, ranking his as the lowest score among tutees on this measure. On the posttest measure his
grade equivalent was 3.9. From pretest to posttest TE3 had a 1.1 grade equivalent gain. Across all TE’s, his gains were tied as largest on the WI measure.

*Word attack.* On the pretest measure, TE3’s grade equivalent was 2.0, ranking his as the lowest score among tutees on this measure. On the posttest measure his grade equivalent was 2.2. From pretest to posttest TE2 had a 0.2 grade equivalent gain. Among all TE’s, his gains were the smallest on the WA measure.

*Passage comprehension.* On the pretest measure, TE3’s grade equivalent was 2.8, ranking him as the lowest performer on this measure, compared to the other TE’s. On the posttest measure his grade equivalent was 3.9. From pretest to posttest TE3 had a 1.1 grade equivalent gain. Across all TE’s, his gains were the second largest on the PC measure.

*Slosson Oral Reading Test*

On the pretest measure, TE3’s grade equivalent was 3.5, ranking his as the lowest score among tutees on this measure. On the posttest measure his grade equivalent was 3.8. From pretest to posttest TE3 had a 0.3 grade equivalent gain. Among all TE’s, his gains were the smallest on the SORT measure.

*Reading Attitude Likert Scale*

On the pretest measure, TE3’s composite score was 25 points, ranking his as the lowest score, compared to the other TE’s. On the posttest measure his composite score was 26. From pretest to posttest TE3 had a 1 point gain. Across all TE’s, his gains were the lowest on the RALS measure.
Oral Reading Fluency

During all conditions, 1-minute timings were conducted with TE3 to assess his oral reading fluency.

Baseline

Six oral reading fluency probes were conducted with TE3 during baseline. Baseline data show that TE3’s range of words read correctly was 108-116 with a mean of 112.8. His oral reading errors data range was 2-5 with a mean of 3.3 (Figure 4.1).

Corrective Reading

The CR experimental condition began on session 14. A total of 21 sessions were conducted during the CR condition. Visual analysis of TE3’s data reveals that overall there was an increasing trend in the CR condition compared to responding in the baseline condition (Figure 4.1). TE3’s range of words read correctly was 93-151 with a mean of 124.4. His oral reading errors data range was 1-5 with a mean of 3.2. Data overlap of the number of words read correctly occurred in sessions 14 (106), 15 (103), 16 (108), 17 (114), 20 (102), 27 (114), and 29 (93). That is, the number of words read correctly in the CR condition was within the range of words read correctly in the baseline condition.

Corrective Reading plus Repeated Reading

The CR+RR experimental condition began on session 35. A total of 6 sessions were conducted during the CR+RR condition. Visual analysis of TE3’s data reveal a sharply increasing trend in the CR+RR condition compared to responding in the baseline and CR conditions (Figure 4.1). TE3’s range of words read correctly in the CR+RR condition was 163-185 with a mean of 168. His oral reading errors data range was 0-5
with a mean of 2.7. Data from the first 1-minute timing to the second 1-minute timing indicates a mean increase of 24.3 words read correctly and a mean increase of 1.3 errors (Figure 4.5). There were no data overlaps of the number of words read correctly in this condition compared to the previous two conditions.

**Figure 4.5:** TE3’s repeated reading data. *Note.* Shows the number of words read correctly and errors made in 1-minute timings.

**Maintenance**

During the MAIN condition two oral reading fluency probes were recorded. The MAIN condition occurred two weeks after the final experimental condition. MAIN data show that TE3’s range of words read correctly was 159-177 with a mean of 168. In both maintenance probes he had 3 errors (Figure 4.1). The MAIN data reveal that the oral
reading fluency level of TE3 maintained at a level higher than that during the BL condition.

**Reading Comprehension**

During all conditions reading comprehension probes were conducted to measure any changes. Maze passages were used to assess reading comprehension. Overall, TE3 increased the number of maze items responded to correctly. Similarly, TE3 responded incorrectly to an increased number of maze items across conditions (Figure 4.3).

**Baseline**

During baseline, three reading comprehension probes were conducted with TE3. Data display that TE3’s range of maze items answered correctly was 17 to 19 with a mean of 18. His range of maze items answered incorrectly was 0 to 9 with a mean of 4 (Figure 4.3).

**Corrective Reading**

During the CR condition, four reading comprehension probes were conducted with TE3. Data display that TE3’s range of maze items answered correctly was 14 to 21 with a mean of 16.5. His range of maze items answered incorrectly was 6 to 10 with a mean of 7.8 (Figure 4.3).

**Corrective Reading plus Repeated Reading**

During the CR+RR condition, three reading comprehension probes were conducted with TE3. Data display that TE3’s range of maze items answered correctly was 15 to 22 with a mean of 18.5. His range of maze items answered incorrectly was 8 to 14 with a mean of 11 (Figure 4.3).
Maintenance

During MAIN, one reading comprehension probe was conducted. TE3 attempted 31 maze items. He responded correctly to 21 maze items and incorrectly to 10 maze items (Figure 4.3).

Tutee 4

Baseline data for each TE were collected prior to the peer-mediated Direct Instruction. TE4 was the fourth TE who entered the experimental condition after seven probes in the baseline condition. TE4 participated in eight experimental sessions throughout the study. TE4 was discharged from the facility after session 30. TR 4 was paired with TE1, since TR1 was discharged from the facility about the same time as TE4.

Pretest & Posttest Measures

Prior to and following the intervention the Woodcock Reading Mastery Tests-Revised (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, the Slosson Oral Reading Test, and the reading attitude Likert Scale (RALS) were administered to TE4. He participated in the study for approximately two and one half months. Therefore, a two and one half month time period separates when the pretest and posttest measures were administered. Appendix U provides the exact dates when the participants were administered the pretest and posttest measures. Table 4.4 displays TE4’s pretest and posttest scores on each measure.

Woodcock Reading Mastery Tests-Revised

Word identification. On the pretest measure, TE4’s grade equivalent was 6.4, ranking his as the highest score among tutees on this measure. On the posttest measure
his grade equivalent was 6.7. From pretest to posttest TE4 had a 0.3 grade equivalent gain. Across all TE’s, his gains were the smallest on the WI measure.

*Word attack.* On the pretest measure, TE4’s grade equivalent was 5.6, ranking his as the highest score among tutees on this measure. On the posttest measure his grade equivalent was 6.1. From pretest to posttest TE4 had a 0.5 grade equivalent gain. Among all TE’s, his gains were the second smallest on the WA measure.

*Passage comprehension.* On the pretest measure, TE4’s grade equivalent was 5.6, ranking him as the highest performer on this measure, compared to the other TE’s. On the posttest measure his grade equivalent was 6.1. From pretest to posttest TE4 had a 0.5 grade equivalent gain. Across all TE’s, his gains were tied as the smallest on the PC measure.

*Slosson Oral Reading Test*

On the pretest measure, TE4’s grade equivalent was 7.4, ranking his as the highest score among tutees on this measure. On the posttest measure his grade equivalent was 7.9. From pretest to posttest TE4 had a 0.5 grade equivalent gain. Among all TE’s, his gains were the second smallest on the SORT measure.

*Reading Attitude Likert Scale*

On the pretest measure, TE4’s composite score was 27 points, ranking his as the second highest score on this measure. On the posttest measure his composite score was 32. From pretest to posttest TE4 had a 5 point gain. Across all TE’s, his gains were tied as the second highest on the RALS measure.
Oral Reading Fluency

During the BL and CR conditions, 1-minute timings were conducted with TE4 to assess his oral reading fluency.

Baseline

Seven oral reading fluency probes were conducted with TE4 during baseline. Baseline data show that TE4’s range of words read correctly was 71-113 with a mean of 94.7. His oral reading errors data range was 3-7 with a mean of 5.3 (Figure 4.1).

Corrective Reading

The CR experimental condition began on session 23. A total of 8 sessions were conducted during the CR condition. Visual analysis of TE4’s data reveals an increasing trend in the CR condition compared to responding in the baseline condition (Figure 4.1). TE4’s range of words read correctly was 101-131 with a mean of 119.1. His oral reading errors data range was 2-5 with a mean of 3.1. Data overlap of the number of words read correctly occurred in sessions 23 (105) and 25 (101). That is, the number of words read correctly in the CR condition was within the range of words read correctly in the baseline condition.

Reading Comprehension

During the BL and CR conditions reading comprehension probes were conducted to measure any changes. Maze passages were used to assess reading comprehension. From BL to the CR condition, the number of maze items TE4 responded correctly to slightly decreased and his number of maze items responded to incorrectly slightly increased (Figure 4.3).
Baseline

During baseline, four reading comprehension probes were conducted with TE4. Data display that TE4’s range of maze items answered correctly was 13 to 19 with a mean of 15.5. His range of maze items answered incorrectly was 0 to 1 with a mean of 0.5 (Figure 4.3).

Corrective Reading

During the CR condition, one reading comprehension probes was conducted with TE4. During that probe, TE4 responded to 14 maze items correctly and incorrectly to one maze item (Figure 4.3).

Tutor 1

Following TR1’s discharge from the facility, TE1 was paired with TR4 for tutoring. TE4 was discharged from the facility at about the same time as TR1.

Pretest & Posttest Measures

Prior to the study the Woodcock Reading Mastery Tests- Revised (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, and the Slosson Oral Reading Test were administered to TR1. He participated in the study for approximately two and half months and was removed from the ranch and placed in a more restrictive setting. Due to TR1’s removal from the facility he was not administered any posttest measures. Table 4.5 displays TR1’s pretest scores on each measure.

Woodcock Reading Mastery Tests-Revised

Word identification. On the pretest measure, TR1’s grade equivalent was 5.3, ranking his as the lowest score among tutors on this measure.
*Word attack.* On the pretest measure, TR1’s grade equivalent was 5.1, ranking his as the second lowest score among tutors on this measure.

*Passage comprehension.* On the pretest measure, TR1’s grade equivalent was 5.6, ranking his as the lowest score on this measure compared to the other tutors.

*Slosson Oral Reading Test*

On the pretest measure, TR1’s grade equivalent was 7.6, ranking his as the lowest score among tutors on this measure.
Table 4.5: TR’s results from the pretest and posttest measures. *Note.* Grade equivalent scores are indicated (raw scores are
indicated in the parentheses). *Note.* WRMT = Woodcock Reading Mastery Test-Revised; SORT = Slosson Oral Reading Test;
WI = Word Identification; WA = Word Attack; PC = Passage Comprehension.
Tutor 2

Pretest & Posttest Measures

Prior to and following the study the Woodcock Reading Mastery Tests- Revised (WRMT) Word Identification (WI), Word Attack (WA), and Passage Comprehension (PC) subtests, and the Slosson Oral Reading Test (SORT) were administered to TR2. He participated in the study for approximately three and one half months. Therefore, a three and one half month time period separates when the pretest and posttest measures were administered. Appendix U provides the exact dates when the participants were administered the pretest and posttest measures. Table 4.5 displays TR2’s pretest and posttest scores on each measure.

Woodcock Reading Mastery Tests-Revised

Word identification. On the pretest measure, TR2’s grade equivalent was 10.3, ranking his as the highest score among TR’s on this measure. On the posttest measure his grade equivalent was 10.8. From pretest to posttest TR2 had a 0.5 grade equivalent gain. Across all TR’s, his gains were the second largest on the WI measure.

Word attack. On the pretest measure, TR2’s grade equivalent was 9.3, ranking his as the highest score across TR’s on this measure. On the posttest measure his grade equivalent was 11.2. From pretest to posttest TR2 had a 1.9 grade equivalent gain. Across all TR’s, his gains were tied as the largest on the WA measure.

Passage comprehension. On the pretest measure, TR2’s grade equivalent was 6.8, ranking his as tied for the highest score on this measure, compared to the other TR’s. On the posttest measure his grade equivalent was 10.4. From pretest to posttest TR2 had a 3.6 grade equivalent gain. Across all TR’s, his gains were the highest on the PC measure.
Slosson Oral Reading Test

On the pretest measure, TR2’s grade equivalent was 12.5, ranking his as the highest score across TR’s on this measure. On the posttest measure his grade equivalent remained 12.5, which remained the highest score across all TR’s.

Tutor 3

Pretest & Posttest Measures

Prior to and following the study the Woodcock Reading Mastery Tests- Revised (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, and the Slosson Oral Reading Test were administered to TR3. He participated in the study for approximately three and one half months. Therefore, a three and one half month time period separates when the pretest and posttest measures were administered. Appendix U provides the exact dates when the participants were administered the pretest and posttest measures. Table 4.5 displays TR3’s pretest and posttest scores on each measure.

Woodcock Reading Mastery Tests-Revised

Word identification. On the pretest measure, TR3’s grade equivalent was 6.3, ranking his as the second lowest score across TR’s on this measure. On the posttest measure his grade equivalent was 7.5. From pretest to posttest TR3 had a 1.2 grade equivalent gain. Across all TR’s, his gains were the largest on the WI measure.

Word attack. On the pretest measure, TR3’s grade equivalent was 6.2, ranking his as the second highest score across TR’s on this measure. On the posttest measure his grade equivalent was 6.9. From pretest to posttest TR3 had a 0.7 grade equivalent gain. Among all TR’s, his gains were the smallest on the WA measure.
Passage comprehension. On the pretest measure, TR3’s grade equivalent was 6.8, ranking his score as tied for the highest on this measure, compared to the other TR’s. On the posttest measure his grade equivalent was 7.2. From pretest to posttest TR3 had a 0.4 grade equivalent gain. Across all TR’s, his gains were smallest on the PC measure.

Slosson Oral Reading Test

On the pretest measure, TR3’s grade equivalent was 8.3, ranking his as the second highest score among TR’s on this measure. On the posttest measure his grade equivalent was 8.9. From pretest to posttest TR3 had a 0.6 grade equivalent gain; his gains were the same as TR4.

Tutor 4

TR4 conducted the intervention with TE4 from sessions 23 to 30 (until TE4 was discharged). TR4 tutored TE1 from session 27 to the end of the study.

Pretest & Posttest Measures

Prior to and following the study the Woodcock Reading Mastery Tests- Revised (WRMT) Word Identification (WI), Word Attack (WI), and Passage Comprehension (PC) subtests, and the Slosson Oral Reading Test were administered to TR4. He participated in the study for approximately three and one half months. Therefore, a three and one half month time period separates when the pretest and posttest measures were administered. Appendix U provides the exact dates when the participants were administered the pretest and posttest measures. Table 4.5 displays TR4’s pretest and posttest scores on each measure.
Woodcock Reading Mastery Tests-Revised

*Word identification.* On the pretest measure, TR4’s grade equivalent was 6.7, ranking his as the second highest score among TR’s on this measure. On the posttest measure his grade equivalent was 7.1. From pretest to posttest TR4 had a 0.4 grade equivalent gain. Across all TR’s, his gains were the smallest on the WI measure.

*Word attack.* On the pretest measure, TR4’s grade equivalent was 3.8, ranking his as the lowest score across TR’s on this measure. On the posttest measure his grade equivalent was 5.7. From pretest to posttest TR4 had a 1.9 grade equivalent gain. Across all TR’s, his gains were tied as the largest on the WA measure.

*Passage comprehension.* On the pretest measure, TR4’s grade equivalent was 5.6, ranking his score as tied for the lowest on this measure, compared to the other TR’s. On the posttest measure his grade equivalent was 7.2. From pretest to posttest TR4 had a 1.6 grade equivalent gain. Across all TR’s, his gains were the second largest on the PC measure.

Slosson Oral Reading Test

On the pretest measure, TR4’s grade equivalent was 8.1, ranking his as the second lowest score among TR’s on this measure. On the posttest measure his grade equivalent was 8.7. From pretest to posttest TR4 had a 0.6 grade equivalent gain; his gains were the same as TR3.

Social Validity

In applied behavior analysis, social validity is analogous with social importance and is a necessary measure to assess consumers’ satisfaction or dissatisfaction with an intervention (Wolf, 1978). In this study, each student participant (i.e., TR’s and TE’s) and
the classroom teacher completed an open-ended questionnaire to assess social validity (Appendices K and L).

**Student Questionnaire**

The student questionnaire was anonymously completed by six of the eight student participants. The students provided short answers to the questions. Overall, students stated that they would participate in the study again. Additionally, the students indicated that their participation in peer tutoring would help them in their classes and/or that others will find peer tutoring beneficial. Table 4.6 displays the students’ responses.
What did you like most about the peer tutoring?

The interactions
I like that peers help [me] during sessions
Teaching [tutee] and getting out of class and talking to [experimenter]
Helping someone else to learn to read better
The help by my peers
I kind of enjoyed teaching my tutee and enjoyed him getting better

What did you like least about the peer tutoring sessions?

I liked all of it
Play around too much
Nothing
It seemed like it took a long time
Having to go back and reread
It was interrupting some assignments I wanted to do

What would you have changed about the peer tutoring sessions?

More one minute timings
[Getting] off topic
Nothing
Not doing the 3 minute comprehension questions
Not having to reread
Nothing

Would you participate in peer tutoring sessions again?

Yes
Yes
Yes
Yes
Yes
Sure, why not

Do you think your participation in the peer tutoring sessions will be helpful for you in your classes? If yes, how so? If no, why not?

Yes, because it will help me read more often and read better
Yes, because I will be looked up to
Yes, because [tutee] has come a long way and hopefully he’ll keep it
No, but I think it will help others
Yes, because people could understand more what is going on
Yes, helps me comprehend

Table 4.6: Student participants’ questionnaire responses.
Teacher Questionnaire

The teacher questionnaire was completed after the study. On the teacher questionnaire, in addition to the seven open-ended questions the teacher was given space to provide any additional comments. Table 4.7 displays the teacher’s responses to the questions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think this was an effective intervention for improving your students’ reading fluency in class?</td>
<td>Yes. I have seen growth in both student reading fluency and self-esteem</td>
</tr>
<tr>
<td>Do you think this was an effective intervention for improving your students’ reading comprehension in class?</td>
<td>Yes. My students are more able to understand content as a direct result of fluency and self-esteem</td>
</tr>
<tr>
<td>Would you consider using peer-mediated instruction in your classroom?</td>
<td>Yes</td>
</tr>
<tr>
<td>What do you perceive would be the most difficult aspect of peer-mediated instruction in your classroom?</td>
<td>Keeping a consistent group of students over time</td>
</tr>
<tr>
<td>Would you use Direct Instruction (i.e. scripted lessons) in your classroom?</td>
<td>I’m not sure, as I did not see the program. However, it has been of benefit to my students so I think so.</td>
</tr>
<tr>
<td>Have you noticed any changes in your students’ relationships with one another?</td>
<td>Yes. They seem to help each other more often.</td>
</tr>
<tr>
<td>Additional comments:</td>
<td>Thank you. The students liked working with you. Thus, they were able to learn from you.</td>
</tr>
</tbody>
</table>

Table 4.7: Teacher’s questionnaire responses.
CHAPTER 5

DISCUSSION

This chapter discusses the results of this study as related to the 11 research questions posed in Chapter 1. Additionally, this chapter will address the limitations of this study, implications of this study, and future research.

Research Question 1

*What Are the Effects of Peer-mediated Corrective Reading Direct Instruction on Older Struggling Readers’ Oral Reading Fluency?*

One-minute timings were conducted with each tutee (TE) across all experimental conditions. Figure 4.1 displays the results for all TE’s on the 1-minute timings. During the CR condition each TE experienced an increase in his level of oral reading fluency. A functional relationship was demonstrated across all participants. That is, behavior change for each participant occurred only when peer-mediated *Corrective Reading* was applied. Furthermore, visual analysis of TE’s data meets the qualifications of prediction, verification, and replication for multiple probes across students (Cooper et al., 2007).

As mentioned in Chapter 3, the *Corrective Reading* program was used by the tutors to mediate instruction. The *Corrective Reading* program focuses primarily on building learners’ decoding skills. The fact that each TE’s oral reading fluency increased
when they received peer-mediated Corrective Reading Direct Instruction is consistent with the findings of the Malmgren and Leone (2000), Drakeford (2002), and Marchand-Martella et al. (2004) studies. Each of these studies also found that youth could be trained to teach their peers effectively using DI, and in two of these studies’ subjects were incarcerated youth. Additionally, Allen-DoBoer and colleagues (2006), who did not use peer-mediated Corrective Reading DI, also had findings consistent with the positive gains in reading found in this study.

Although all of the students demonstrated improved oral reading fluency there were individual differences noted. Toward the end of TE1’s baseline probes, his number of words read correctly began increasing; however, there was also a simultaneous increase in errors. This is indicative of a student attempting to read more quickly without the decoding skills needed to read the text fluently. The concern is that the increased errors can have a detrimental effect on comprehension. Increased errors also raised a concern about TE1 practicing errors. Therefore, the decision was made to intervene with TE1. Implementing the intervention after five consecutive probes was appropriate and had the desired effect of reducing his oral reading errors. Accuracy is a component of fluency; therefore, reducing the number of errors one commits while reading is important for achievement of reading comprehension.

TE2 had the lowest mean number of words read correctly during baseline (73.4); however, he demonstrated the sharpest increase in mean number of words read correctly from baseline to the CR condition (137.9). From baseline to CR condition he demonstrated a mean number of words read correctly increase of almost 65 words. A possible explanation why TE2 experienced such a large increase from baseline to CR was
that he extinguished his overcorrection methods for ensuring he read accurately. That is, during baseline he would read in an extremely choppy fashion, habitually reread sentences, and take a thinking pause before reading what he perceived to be a difficult word to ensure he read words correctly. In fact, across all tutees, TE2 had the lowest mean errors during baseline. In the CR condition, TE2 made a purposeful effort not to overcorrect. Additionally, in the CR condition TE2’s tutor (TR2) was more assertive and would arbitrarily set goals and encourage TE2 (e.g., “Come on man, don’t go back rereading words. You should read 135 words!”).

Given the baseline data that indicated oral reading fluency for each of the TE’s (approximately 100 wpm) was much lower than the established norms of an eighth grader (i.e., 151 wpm; Tindal, Hasbrouck, & Jones, 2006) (fluency norms for high school students could not be located), these students were at a large disadvantage in their ability to read the large amounts of academic material typically required in high schools. Without effective intervention students who read slowly often become frustrated in school and this sometimes leads to acting out behavior (Gardner & Hsin, 2008). Helping students to improve their accuracy and speed in reading may increase their opportunities for success in school and decrease inappropriate behaviors (Vaughn, Levy, Coleman, & Bos, 2002).

Overall, it was evidenced that peer-mediated Corrective Reading increased oral reading fluency. Furthermore, peer-mediated Corrective Reading helped improve the oral reading accuracy of three out of four TE’s. Therefore, providing explicit instruction in decoding skills can help improve the oral reading fluency of older struggling readers and stronger reading peers can be a tremendous resource for delivering Direct Instruction.
Research Question 2

What Are the Effects of Peer-mediated Corrective Reading DI and Guided Repeated Oral Reading on Older Struggling Readers’ Oral Reading Fluency?

In each condition, 1-minute timings were conducted with each tutee. Figure 4.1 displays the results for all tutees on the 1-minute timings. During the CR+RR condition TE4 did not participate because he had already been released from the facility. Each TE in the CR+RR condition experienced an increase in his fluency. This is consistent with the findings of Harris and colleagues (2000) study.

Adding repeated readings proved to be a highly effective strategy for producing the most significant increases in each TE’s oral reading fluency. In fact, each TE’s average number of words read correctly increased by at least 43 words. Furthermore, data overlap with preceding conditions only occurred with one TE during the CR+RR condition, whereas data overlap with the preceding condition occurred for all TE’s in the CR condition.

All TE’s were reading at a relatively high rate; therefore, as discussed by Dowhower (1989), implementing a specific number of repeated readings of a passage as opposed to an aim was an appropriate method for conducting repeated readings with the TE’s. Additionally, across all TE’s, their oral reading fluency increased from the first 1-minute timing to the second 1-minute timing in 28 out of the 30 CR+RR sessions. Therefore, it can be interpreted that reading a passage three times was an adequate number of times to produce sufficient fluency increases.

The increases in oral reading fluency for the three tutees are important because each began to approximate the levels expected for individuals their age. The students’
rapid increases when repeated reading was added to DI indicated that teachers can use this strategy to make an important impact on students' reading skills in a short amount of time. The results of these data in terms of oral reading fluency are consistent with results found by Young, Bowers, and MacKinnon (1996). Staubitz, Cartledge, Yurick, and Lo (2005) also found that repeated reading increased the oral reading fluency of children with behavior problems. While oral reading fluency is generally considered a predictor of comprehension, this study did not find a strong relationship between the two reading skills. The lack of significant gains in reading comprehension when fluency increases were made is similar to the results found by Rashotte and Torgesen (1985). The relationship between oral reading fluency and comprehension will be discussed later in Question 4.

Research Question 3

Will the Older Struggling Readers' Levels of Oral Reading Fluency Maintain After the Intervention?

All TE’s increased levels of oral reading fluency maintained after the intervention. That is, two weeks after the intervention each TE’s (except TE4 who was not present due to his release) levels of oral reading fluency were higher than during baseline. The extent to which that level maintained varied for each TE. For example, TE3 was able to maintain the same oral reading fluency level as his second experimental condition (i.e., CR+RR), during which he had his highest fluency level. TE1 and TE2’s fluency levels were higher than the first experimental condition (i.e., CR) yet lower than his second experimental condition (i.e., CR+RR). It is not unexpected that TE1 and TE2’s levels of oral reading fluency slightly decreased because they were no longer
receiving explicit fluency instruction. However, it is surprising that TE3’s oral reading fluency maintained at the highest level he achieved during the intervention. It appears the time period from when the intervention was terminated to when maintenance probes were conducted did not affect TE3’s oral reading fluency level to the extent of TE1 and TE2’s fluency level. The amount of independent reading that each participant did was not measured; therefore, it may be possible TE3 engaged in more frequent independent reading than the other TE’s and as a result was able to maintain his oral reading fluency level. This may indicate the need for teachers, who have used repeated reading or other fluency training strategies to improve the oral reading fluency of students, to incorporate interesting reading materials into the curriculum that might engage the students’ interest. Teachers could use books about topics that are of particular interest to the students (e.g., sports, nature, etc.) or use culturally sensitive materials that reflect the aspects of the students’ lives (Cartledge, Gardner, & Ford, 2009). The teacher should have a goal of consolidating the oral reading gains made by the students and then using high interest materials to promote comprehension.

Research Question 4

*What Are the Effects of Peer-mediated Corrective Reading DI on Older Struggling Readers’ Reading Comprehension?*

Across all TE’s the peer-mediated Corrective Reading had mixed effects on their reading comprehension. From baseline to CR, the number of maze items answered correctly increased for TE1 and TE2. The mean number of maze items answered incorrectly increased from baseline to CR for all TE’s except TE2.
TE3 responded to the most maze items during the CR condition, but answered the most maze items incorrectly across all TE’s.

One explanation why mixed reading comprehension results were obtained from TE’s was because of the method for assessing reading comprehension. As discussed in Chapter 3, each TE was given maze passages to measure reading comprehension. Though maze passages can be used to monitor a student’s comprehension they do not directly measure a student’s reading comprehension of connected text. Specifically, maze passages more directly measure a student’s isolated word comprehension (i.e., vocabulary). Therefore, the fact that there were mixed results in reading comprehension among TE’s does not necessarily mean that TE’s did not have significant gains in comprehension related skills (e.g., retell, the ability to answer inferential and factual questions, self-monitoring, etc.).

Second, even though the TE’s oral reading fluency increased they might not have improved to a level where reading was automatic. That is, the students might still be focusing on decoding words rather than fully on text comprehension (Wolf & Katzir-Cohen, 2001). The students may need additional practice in order to reach automaticity.

Third, the passages used for comprehension in this study may not have been of interest to the students. Examples of the story topics used were “Bat lived all by himself in a damp musty cave” and “Andy was one of many ants on an ant hill” (see Appendix J). If an interest survey was done to determine topics of interest for the students reading passages, measurement on those topics may have promoted higher levels of comprehension.
Finally, the number of increased maze items answered incorrectly from baseline to the CR condition could be due to guessing. The maze passages contained forced choice items. Therefore, students may have been more concerned with completing as many items as possible in the allotted amount of time as opposed to answering each item correctly. For example, across all conditions TE3’s rate of responding increased, but his level of accuracy decreased.

**Research Question 5**

*What Are the Effects of Peer-mediated Corrective Reading DI and Guided Repeated Oral Reading on Older Struggling Reader’s Reading Comprehension?*

Across all TE’s (except TE4) during the CR+RR condition the number of maze items answered correctly increased. Additionally, in the CR+RR condition TE1 and TE2 decreased the number of maze items they answered incorrectly. However, similar to the CR condition, TE3’s rate of responding increased, but his number of maze items answered incorrectly increased. Indicating that he may have continued guessing on maze items in an effort to complete as many as he could in the allotted time instead of answering each item carefully.

The number of maze items answered correctly serves the primary purpose of indicating improvements in reading comprehension. However, the number of maze items completed provides somewhat of an indication of how far along or approximately how many words a TE was able to silently read in the allotted three minutes. While it may be that any number obtained from TE’s indicating how many words they read is invalid and cannot be used to make any declarations about a TE’s silent reading fluency, it would seem that because all TE’s were receiving explicit fluency instruction during this
condition that they would all have data indicating that they completed the most maze
items in this condition. Contrarily, the number of maze items completed by TE1 was not
his highest in this condition. This indicates that the additional task of having to figure out
the correct answer choice overshadowed the increased fluency he achieved during this
condition.

Much of the literature indicates that improvements in reading fluency improve
reading comprehension (Therrien & Kubina, 2006; Kuhn & Stahl, 2003). In that regard,
results from this study are consistent with the literature. Additionally, much of the
literature also indicates that comprehension strategies should be explicitly taught for
students to learn and enhance their reading comprehension skills (Bursuck & Damer,
2007; Gersten et al., 2001; Mastropieri & Scruggs, 1997). From that perspective findings
from this study are also consistent with the literature because explicit instruction in
reading comprehension was not provided for the TE’s and possibly contributed to the
increased number maze items incorrectly responded to by TE3. The data from this study
indicate that teachers need to assess the reading comprehension of students and then
explicitly teach comprehension when the students are not making appropriate progress.

Research Question 6

*Will the Older Struggling Readers’ Levels of Reading Comprehension Maintain
After the Intervention?*

Overall, TE’s levels of reading comprehension did maintain after the intervention.
In fact, on maintenance probes, all TE’s answered more maze items correctly than in
baseline probes. The fact that the overall level of incorrectly answered maze items
increased among all TE’s further strengthens the argument that for students to maintain


meaningful gains and accuracy in reading comprehension interventions must explicitly teach reading comprehension strategies, the comprehension strategies must be practiced daily and the intervention must be in place for a significant period of time (Gersten et al., 2001).

Research Question 7

*What Are the Effects of the Intervention on Older Struggling Reader’s Reading Achievement?*

The standardized measures used to assess TE’s reading achievement were the *Woodcock Reading Mastery Tests- Revised* (WRMT) Word Identification, Word Attack, and Passage Comprehension subtests and the Slosson Oral Reading Test (SORT). Each TE’s performance on these measures is summarized in Table 4.4. Overall, TE’s made positive gains on all measures. These finding are consistent with Campbell’s study (as cited in Marchand-Martella, Martella, & Przychodzin-Havis, 2005). Calculating the total average gains on each measure shows that the greatest gain was made on the WRMT Word Attack. This finding validates the efficacy of the *Corrective Reading* program’s decoding strand because its primary focus is on strengthening students’ word attack skills (Marchand-Martella et al., 2005). However, TE3 only had a grade equivalent gain of two months on the Word Attack measure. A possible explanation why TE3 had a minimal gain on this measure is that his pretest score indicated that he entered this study with the weakest decoding skills. TE3’s weak decoding skills are an indicator that he had not fully grasped the alphabetic principle. With that in mind, his minimal gain on the Word Attack subtest is consistent with literature indicating that providing an intervention for students who have not mastered the alphabetic principle will typically take longer for an effect to
occur as opposed to his peers who have a stronger grasp of the alphabetic principle (Bursuck & Damer, 2007).

Interestingly, all TE’s made relatively large gains on the Passage Comprehension subtest. As noted, comprehension data collected during the intervention showed that overall comprehension gains were made but for some TE’s incorrect comprehension responding increased. Though the intervention findings and standardized test findings are contradictory, this could highlight that the administration procedures for comprehension measurement during the intervention and for the Passage Comprehension subtest were confounding variables that had an effect on TE’s performance. This also indicates that completing maze items and cloze items (cloze items are used for the Passage Comprehension subtest) require very different skills.

Individual differences on each test are noted. For example, on the Word Attack subtest, TE1 had his largest gain on this test whereas TE3 had his smallest gain on this test. Similarly, on the Passage Comprehension subtest, TE2 had a grade equivalent gain of one and one-half years, whereas TE1 had a grade equivalent gain of one-half year. These differences highlight the diversity of older struggling readers and the necessity for teachers to frequently assess their students and provide individualized instruction.

Although it was important that all TE’s made gains in their reading achievement, without statistical analysis of TE’s gains, determining how significant those gains were is arguable. For example, the administration period from pretest to posttest for TE1, TE2, and TE3 was approximately three and one-half months, so one may argue that any gains made should be equal to or greater than a grade equivalent of three and one-half months for those gains to be considered significant. On the other hand, one may argue that if
these students previously made gains in a three and one-half month period of time that was less than the grade equivalent of three and one-half months, than any gains made beyond what those students typically achieved in a three and one-half month period are significant. This is particularly relevant given that all of the tutees and tutors in this study had been identified with a mild disability. Students with mild disabilities, who have reading deficits rarely make typical academic progress (Heward, 2006)

Another consideration when analyzing the reading achievement data of this study is the measurement tools’ sensitivity. To explain, standardized tests are typically administered once or twice (at the beginning and end of the school year) during a school year; therefore, the average three month period between pretest and posttest administration in this study may not have been enough time to demonstrate extreme gains on each of the tests because it may not have been sensitive enough to fully measure the effects this intervention had on each TE.

Finally, the Corrective Reading program is broken up into specific levels and within each level a skill is taught and built upon. Therefore, completing an entire level is the most favorable method for instructing students with this program, as well as the best method for enhancing student growth. Because peer-mediators (i.e., TR’s) only, on average, instructed their respective TE’s using half of the lessons contained within a level it is not known how great TE’s gains could be if an entire level was taught to them.
Research Question 8

What Are the Effects of Peer-mediated Corrective Reading Direct Instruction on the Reading Achievement of the Tutors?

The standardized measures used to assess TR’s reading achievement were the *Woodcock Reading Mastery Tests- Revised* (WRMT) Word Identification, Word Attack, and Passage Comprehension subtests and the Slosson Oral Reading Test (SORT). Each TR’s performance on these measures is summarized in Table 4.5. Overall, TE’s made positive gains on all measures (posttest scores were not obtained from TR1 because he was discharged from the facility). These data offer supporting evidence that by tutoring others, positive educational benefits are achieved by the tutor. Additionally, these findings are consistent with the research conducted by Parson and Heward (1979).

In comparison with the TE’s total average gains on each measure, the TR’s total average gains were greater on two out of the four measures. Similar to the discussion about TE3, posed under question seven, TR’s entering this study had greater reading skills than TE’s; therefore, it may be possible that frequent exposure to the skills they taught to their respective TE allowed them to enhance their already stronger reading skills at a more expedited pace than the TE’s, thus producing greater gains on the standardized measures. Nevertheless, some of the large gains made by TE’s (e.g., some grade equivalent gains were more than one year) should not be understated.
Research Question 9

*What Are the Effects of the Intervention on Older Struggling Reader’s Attitude Toward Reading?*

Many approaches are taken to motivate students to read independently and to develop a life-long affection toward reading. This is especially true for older struggling readers who view reading negatively because they have experienced reading failure throughout their academic careers. Therefore, an additional measurement of the success of a reading intervention aimed at older struggling readers is if it had a positive effect on their attitude toward reading. Overall, TE’s data on the Reading Attitude Likert Scale (RALS) (Appendix L) indicated the intervention may have had a positive impact on their attitude toward reading. Table 4.4 details each TE’s pre and post scores on the RALS.

For pre and post scores to be compared each TE had to place identifying information on his RALS form. Therefore, it may be possible experimenter subjectivity acted as a confounding variable. However, varying score gains across TE’s, interactions between the experimenter and TE’s, and comments made by the teacher throughout the study do not support that experimenter subjectivity had an effect on TE’s responses on the RALS.

Research Question 10

*What Are the Opinions of the Student Participants About the Intervention?*

Each student participant present at the conclusion of the study completed an open-ended questionnaire to express his opinion of the intervention (see Appendix M). Table 4.6 details the student participants’ responses. Overall, the student participants’ responses indicated that they had a favorable opinion about the intervention. A common theme
among all participants was that they liked working with each other. This is consistent with literature indicating that peer collaboration is an effective method for increasing reading motivation (Guthrie & Humenick, 2004).

Some student responses for specific questions revealed that the sessions took too long and that at times it interfered with activities they found more desirable. The student participants in this study had no control over what time the sessions would begin and reinforcement was contingent on completion of a session. Therefore, it may be possible that more consideration for the students should have been taken when planning an appropriate time for the intervention as well as for ensuring student interest maintained for an entire session. An appropriate consideration could have been including students in decision meetings about when sessions would occur so they could ask questions or offer suggestions about appropriate times to conduct the sessions. Another consideration could have been to provide reinforcement intermittently during sessions instead of only providing reinforcement at the end of each session.

Research Question 11

What is the Opinion of the Classroom Teacher About the Intervention?

At the conclusion of the study an open-ended questionnaire was given to the teacher for him to express his opinion about the study (see Appendix N). Table 4.7 details the teacher’s responses to the question items. Overall, he had a favorable opinion about the intervention and indicated that he noticed a change in his students’ social and academic behaviors. Based on the teacher’s responses there are primarily two potential barriers a teacher in a correctional facility would have in implementing this intervention
(a) the frequent mobility of the student population and (b) lack of awareness about Direct Instruction programs.

Limitations of the Study

Participant Attrition

A limitation of this study was that two participants did not complete this study. As documented, this population tends to exhibit high mobility rates (Rutherford et al., 2001). Fortunately, only one tutor and one tutee did not complete this study, which allowed for a dyad to be formed between their respective partners. Nevertheless, time consuming adjustments were made to ensure a smooth transition for the newly formed dyad. One adjustment that needed to be made was that the tutor had to be trained to use the Corrective Reading B1 level because his original tutee was in the B2 level.

Additionally, participant attrition was a limitation of this study because losing a tutor and a tutee decreased the total number of dyads from four to three. This is significant because in a multiple probe design the more replications conducted in an experiment the more convincing it is that a functional relation has been demonstrated (Cooper et al., 2007).

All student participants in this study were incarcerated adolescents with disabilities. This limits generalizations and recommendations that can be made about students in traditional schools.

Participant Behaviors

The study was conducted Monday through Friday; however, participants were not always available on consecutive days because of inappropriate behaviors. For example, if a participant refused to comply with the teacher or teaching assistant’s directions he
would be sent to the program unit (residential quarters). Additionally, participants refused to wake up on time to attend school. As a result, days would pass between sessions. This is a limitation because it is unclear what effect non-consecutive days of instruction had on the TE’s reading behaviors.

Lack of Generalization Probes on Classroom Texts

Fluency and comprehension measures in this study only used novel (unseen) narrative passages to assess tutee behaviors. Therefore, an additional limitation of this study was that no measures were taken to assess participants’ generalization of their learned skills on materials used in the classroom. An appropriate method for assessing generalization would have been to measure the TE’s fluency and comprehension in expository texts that are used in the classroom. However, content area texts were not used in the classroom so generalization probes with expository text used during classroom instruction could not be conducted.

Lack of a Comparison Group

Another limitation of this study is that there was no comparison group to analyze how gains made by the tutees during this experiment would have compared with other students. One possible comparison group could have been a group of students whose instruction was mediated by the teacher. Another possible comparison group could have been a group of students who received explicit comprehension strategy instruction in addition to the intervention this study provided. By including such data researchers could assess what differences existed between the groups and determine what the most critical components of each intervention were for so they could be combined to create a highly
effective intervention package that would increase gains in fluency as well as comprehension.

Implications

Findings from this study have demonstrated that older struggling readers who are incarcerated can make significant gains in reading when they are provided with a systematic reading program. Furthermore, using a DI program such as Corrective Reading for incarcerated youth with reading difficulties is advantageous because it can produce gains quickly for this highly mobile population.

Peer tutoring is an evidenced-based instructional strategy that can be utilized for implementing DI. The high procedural integrity percentages of this study indicated that students in correctional facilities can deliver scripted lessons with fidelity. Additionally, it does not require a tremendous amount of effort to train students to use DI materials. Furthermore, tutors in correctional facilities are capable of accurately recording peer behaviors, as evidenced by the high interobserver agreement percentages obtained in this study.

All of the students who participated in this study had a disability and every tutor except one was significantly below grade level in reading. Therefore, an implication of this study is that students with disabilities can effectively teach each other. Students with disabilities can be trained to implement DI. Additionally, students with deficient reading skills are still valuable resources who can be used to mediate reading instruction for peers reading at a lower level than themselves.
Another implication of this study is that students have a favorable opinion of DI and repeated readings. They will acknowledge the benefits of such instructional methods when self-observations are made about their performance in other academic areas.

A final implication of this study is based on feedback obtained from the teacher questionnaire. The classroom teacher indicated that he would use DI programs, such as *Corrective Reading*, if he was informed about the existence of such programs. Therefore, it may be possible that teachers would use DI programs if they are adequately informed about its existence and are educated about the effectiveness such programs.

**Future Research**

Comprehension is the ultimate goal of reading. Therefore, future research should extend this study by including explicit comprehension strategy instruction strategies with the intervention that was used. By doing so, it is likely that students will make greater gains in comprehension. Also future research should include high interest reading materials.

A study should be conducted for a longer period so that students have the ability to complete an entire level of the Corrective Reading DI materials. This will allow for a more comprehensive evaluation of the materials’ effectiveness.

In this study maintenance probes were conducted shortly after the intervention was terminated (2 weeks). The reason why maintenance probes were conducted after such a brief intermission was because students were soon to be released from school for summer vacation and would no longer be accessible to the experimenter. Future research should conduct maintenance probes well beyond termination of the intervention to
determine how long after the intervention’s termination will students’ learned reading behaviors maintain and at what rate those reading behaviors deteriorate.

Finally, this study raises questions about how long it will typically take before students reach an oral reading fluency ceiling and what should be done by practitioners when an oral reading ceiling is reached. Therefore, future research should be conducted to determine the average amount of time it takes for students of similar reading skills to reach an oral reading ceiling and what plan of action practitioners should take to ensure a student has reached his maximum fluency rate.

Summary

The purpose of this study was to examine the effects of peer-mediated Direct Instruction on the oral reading fluency and comprehension of older struggling readers who reside at a facility for juvenile delinquents. Tutors used the Corrective Reading (Englemann et al., 1999) program to explicitly teach decoding. Additionally, tutors implemented the repeated oral reading strategy for their tutees.

The effectiveness of the peer-mediated Corrective Reading DI was primarily determined by comparing the fluency data obtained, from 1-minute timings, prior to the intervention with fluency data obtained during the intervention (i.e. comparing baseline with the experimental conditions). Students receiving peer-mediated instruction all made gains in their levels of oral reading fluency.

Comparing pre-intervention reading comprehension probes data with reading comprehension probes data obtained during the intervention was a secondary measure to determine the effectiveness of this intervention. Across all tutees gains in reading
comprehension were made. Additionally, all tutees were able to maintain their respective rate of comprehension.

Finally, comparing pretest and posttest data from standardized tests was used to determine the effectiveness of this intervention. Pretest and posttest results indicated that both students who taught and students who received instruction made gains in their reading achievement. This is important because it means that tutors are likewise benefiting from instruction.

Overall, results obtained from this study evidence the effectiveness of this intervention. Additionally, peer-mediated instruction is an efficient instructional method for incarcerated youth with disabilities. Finally for this highly mobile at-risk population, DI is an appropriate teaching method because it can have an expedient effect on incarcerated older struggling readers reading skills.
LIST OF REFERENCES


Reading a-z. (n.d.). [online computer program]. Retrieved December 2, 2007, from Reading a-z Web site: http://www.readinga-z.com


APPENDICES
APPENDIX A

PRINCIPAL LETTER OF SUPPORT
January 31, 2008

To Whom It May Concern:

I am writing this letter to support the proposed research study to be conducted with students/residents at The Buckeye Ranch. Mr. Christopher D. Yawn will be conducting the study under the supervision of Dr. Ralph Gardner, associate professor in the College of Education and Human Ecology, at The Ohio State University. I understand Mr. Yawn will be analyzing the effectiveness of peer-delivered Direct Instruction and repeated reading for struggling readers. I have also received copies of the parent consent forms. I believe that this reading program is in accordance with standard teaching practices and in no way places students at our school at risk. I look forward to working with Mr. Yawn and Dr. Gardner on this study at The Buckeye Ranch.

Please feel free to contact me at (614) 539-6456 if additional information is needed.

Sincerely,

Michael Wang, Principal
APPENDIX B

PARENT LETTER FOR PARTICIPATION - TUTOR
February ___, 2008

Dear Parent/Guardian:

My name is Christopher D. Yawn. I am a doctoral candidate in Special Education at The Ohio State University. I am writing to inform you of a reading program that will be conducted at The Buckeye Ranch. I will be conducting this program with Dr. Ralph Gardner, my faculty advisor.

The purpose of the reading program is to assist students who are having difficulty becoming proficient readers. Each student will give/receive individualized instruction to/from a peer under my supervision. The reading program is designed to supplement instruction that students are currently receiving at The Buckeye Ranch. Students receiving peer tutoring will receive instruction in decoding, fluency, and comprehension skills. The reading strategies that will be used have proven successful with other students who struggle with reading.

As a tutor, your child will also benefit from participation in this study. For example, previous research has shown that tutoring others can improve the academic performance of tutors in the area(s) he/she provides instruction in. Additionally, tutors will be given the opportunity to demonstrate important social behaviors (i.e., leadership, active listening, etc.) daily.

This program will be conducted at The Buckeye Ranch during regular school hours. Each tutor will provide reading instruction for about 30 minutes three to four times a week. We anticipate the project will take 14-16 weeks. Please be advised that at any time you can withdraw your child from the program without consequence.

Please feel free to contact Dr. Ralph Gardner directly at (614) 292-3308 or gardner.4@osu.edu or Mr. Christopher D. Yawn at (614) 975-0175 or yawn.4@osu.edu. We will be happy to go over the program with you and answer any questions you may have. If you want your child to participate in the program please return the attached consent form.

Sincerely,

Mr. Christopher D. Yawn

Dr. Ralph Gardner, III

Special Education  Sport & Exercise Education, Humanities, Management & Science  Counselor Education & School Psychology  Workforce Development & Education
February ____, 2008

Dear Parent Guardian:

My name is Christopher D. Yawn. I am a doctoral candidate in Special Education at The Ohio State University. I am writing to inform you of a reading program that will be conducted at The Buckeye Ranch. I will be conducting this program with Dr. Ralph Gardner, my faculty advisor.

The purpose of the reading program is to assist students that are having difficulty becoming proficient readers. Each student will give/receive individualized instruction to/from a peer tutor under my supervision. The reading program is designed to supplement instruction that students are currently receiving, at The Buckeye Ranch. Students receiving peer tutoring will receive instruction in decoding, fluency, and comprehension skills. The reading strategies that will be used have proven successful with other students who have struggled with reading skills. I will be able to provide you with weekly updates on your child’s performance if you desire.

This program will be conducted at The Buckeye Ranch during regular school hours. Each student will receive about 30 minutes of reading instruction three to four times a week. We anticipate the project will take 14 to 16 weeks. This program will be at no cost to you. Please be advised that at any time you can withdraw your child from the program without consequence.

Please feel free to contact Dr. Ralph Gardner directly at (614) 392-3308 or gardner.4@osu.edu or Mr. Christopher D. Yawn at (614) 975-0175 or yawn.4@osu.edu. We will be happy to go over the program with you and answer any questions you may have. If you want your child to participate in the program please return the attached consent form.

Sincerely,

Mr. Christopher D. Yawn

Dr. Ralph Gardner, III
APPENDIX D

PARENT CONSENT FOR PARTICIPATION IN EDUCATIONAL RESEARCH
I consent to participating in (or have my child participate in) the research entitled: **Effects of Peer-Mediated Direct Instruction on the Reading Skills of Struggling Readers in a Residential School** at The Buckeye Ranch.

Dr. Ralph Gardner, Principal Investigator, or his/her authorized representative Christopher D. Yawn has explained the purpose of the study, the procedures to be followed, and the expected duration of my (my child’s) participation. Possible benefits of the study have been described, as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Furthermore, I understand that I am (my child is) free to withdraw consent at any time and to discontinue participation in the study without prejudice to me (my child).

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

---

Date: __________________________

Signed: _______________  
(Participant)

Signed: _______________________

(Principal Investigator or his/her authorized representative)

Signed: _______________________

(Person authorized to consent for participant, if required)

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APPENDIX E

STUDENT ASSENT SCRIPT
Mr. Yawn has explained to me that he will be conducting a study that involves peer tutoring. He has explained to me that I will give/receive reading skills from a peer. I know that I can choose not to participate in this study at any time and I can ask questions at any time. I ______________ give Mr. Yawn my permission to use me as a participant in his study.
APPENDIX F

CORRECTIVE READING PLACEMENT TEST
**DECODING PLACEMENT TEST**

Name ____________________________  Class ________  Date ________________

School ___________________________  Tester ___________________________

**PART I**

- Kit made a boat. She made the boat of tin. The nose of the boat was very thin. Kit said, "I think that this boat is ready for me to take on the lake." So Kit went to the lake with her boat.

  - Her boat was a lot of fun. It went fast. But when she went to dock it at the boat ramp, she did not slow it down. And the thin nose of the boat cut a hole in the boat ramp.

  - The man who sold gas at the boat ramp got mad. He said, "That boat cuts like a blade. Do not take the boat on this lake any more."

**PART II**

- Can she see if it is dim?
- And it can fit in a hand.
- Now the hat is on her pet pig.
- I sent her a clock last week.
- How will we get dinner on this ship?
- The swimming class went well.
- When they met, he felt happy.
- Then she told me how happy she was.
- The tracks led to a shack next to the hill.
- They said, "We will plant the last of the seeds."
- What will you get when you go to the store?
- You left lots of things on her desk.
PART III

Hurn was sleeping when it happened. Hurn didn't hear the big cat speak into the cave that Hurn called his home. Suddenly Hurn was awake. Something told him, "Beware!" His eyes turned to the darkness near the mouth of the cave. Hurn felt the fur on the back of his neck stand up. His nose, like noses of all wolves, was very keen. It made him very happy when it smelled something good. But now it smelled something that made him afraid.

Hurn was five months old. He had never seen a big cat. He had seen clover and ferns and grass. He had even eaten rabbits. Hurn's mother had come back with them after she had been out hunting. She had always come back. And Hurn had always been glad to see her. But now she was not in the cave. Hurn's sister, Surt, was the only happy smell that reached Hurn's nose.

PART IV

There is a redwood tree living today in northern California. That redwood, like many others, has had an interesting life.

Its life began with a seed contained in a cone. A redwood cone is about as big as a quarter. The cone starts to grow in early summer. By late summer it is full-sized and bright green with many seeds inside. The cone is not yet full grown, however. As fall approaches, the cone begins to change color, turning brown. Small flaps on all sides of the cone open, and as they do, the tiny seeds fall out. The seeds are so small that ten of them would easily fit on the end of your finger. If you wanted half a kilogram of these seeds, you would have to collect about 120 thousand of them.
APPENDIX G

DECODING PLACEMENT SCHEDULE
## DECODING PLACEMENT SCHEDULE

<table>
<thead>
<tr>
<th>Errors</th>
<th>Time</th>
<th>Placement or next test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 or more</td>
<td>—</td>
<td>Administer PART II Test</td>
</tr>
<tr>
<td>12 to 21</td>
<td>more than 2:00</td>
<td>Level A. Lesson 1</td>
</tr>
<tr>
<td>12 to 21</td>
<td>2:00 or less</td>
<td>Administer Part II Test</td>
</tr>
<tr>
<td>0 to 11</td>
<td>more than 2:00</td>
<td>Level B1. Lesson 1</td>
</tr>
<tr>
<td>0 to 11</td>
<td>2:00 or less</td>
<td>Administer PART III Test</td>
</tr>
<tr>
<td><strong>PART II</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 or more</td>
<td>—</td>
<td>No Corrective Reading Placement; use a beginning-reading program</td>
</tr>
<tr>
<td>8 to 40</td>
<td>—</td>
<td>Level A. Lesson 1</td>
</tr>
<tr>
<td>0 to 7</td>
<td>—</td>
<td>Level B1. Lesson 1</td>
</tr>
<tr>
<td><strong>PART III</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 or more</td>
<td>—</td>
<td>Level B1. Lesson 1</td>
</tr>
<tr>
<td>6 to 15</td>
<td>more than 2:30</td>
<td>Level B1. Lesson 1</td>
</tr>
<tr>
<td>6 to 15</td>
<td>2:30 or less</td>
<td>Level B2. Lesson 1</td>
</tr>
<tr>
<td>0 to 5</td>
<td>more than 2:30</td>
<td>Level B1. Lesson 1</td>
</tr>
<tr>
<td>0 to 5</td>
<td>2:30 or less</td>
<td>Administer PART IV Test</td>
</tr>
<tr>
<td><strong>PART IV</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 or more</td>
<td>—</td>
<td>Level B2. Lesson 1</td>
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<td>Level C. Lesson 1</td>
</tr>
<tr>
<td>0 to 2</td>
<td>more than 1:30</td>
<td>Does’t need Corrective Reading decoding program</td>
</tr>
<tr>
<td>0 to 2</td>
<td>1:30 or less</td>
<td>Level C. Lesson 1</td>
</tr>
</tbody>
</table>
APPENDIX H

AIMSWEB FLUENCY PASSAGE
Albert was a goldfish in a bowl. He ate a breakfast of green and brown flakes each morning. Then he watched the children go off to school.

Albert hated being stuck in his bowl because he could only swim around in circles. He'd rather go to school. Poor Albert couldn't even read a book. The pages would get soaked!

Albert was quite a smart fish. He could do flips under water. He could spell his name in the pebbles on the bottom of his bowl. No matter how brilliant Albert was though, he still had a problem. Only the cat spoke to him. And the cat was not particularly nice to him.

"I'll eat you up one day," the cat would tell Albert when they were all alone in the house. "I'll gobble you right up. You will be surprised to discover that no one will miss you."

It seemed to Albert that everyone loved the cat. No one seemed to notice the cat was mean. No one seemed to care that the cat hated books and wasn't smart. The cat couldn't even spell his own name, but the children played with him every day.

One day the cat dipped his paw in Albert's fishbowl. To save himself, Albert swam to the very bottom of his fishbowl. He hid behind some rocks. When the children came home from school that day, they saw the cat was wet. They didn't see Albert hiding behind the rocks in the bottom of his fishbowl, and that scared them.

"You are a very naughty cat!" they shouted.

Finally one of the children found Albert hiding in the bottom of the bowl. "I found him! I found our wonderful fish!" Albert felt happy that his family loved him after all.

Now the cat gets locked in the basement every day, and the children read books to Albert every night.
Native Americans

A long time ago our North America was mostly forest. There were no big cities. The water was so clean you could safely drink river water. If you tried that today, it could make you extremely ill. It could even kill you. (44)

Native Americans, called Indians by the settlers, lived in this land. They hunted, farmed, and traded with one another. Their weapons were simple; bows and arrows, spears, and war clubs. There were many tribes of native Americans. (81)

The settlers brought many diseases with them. Many native Americans became ill and died. Their bodies could not fight off diseases such as measles or mumps. Entire tribes were wiped out by these diseases. (115)

The settlers were often warlike and took the best land for themselves. When native Americans fought back, the settlers called in the army for help. The army was well-armed and had many troops. Native Americans were eventually defeated and forced onto patches of land thought worthless. These were and still are called reservations. (169)
APPENDIX J

AIMSWEB MAZE PASSAGE
Bat lived all by himself in a damp and musty cave. The cave was always dark and (night, juicy, dreary). As Bat hung upside down day (other, after, yellow) day, he thought about his sorrows.

"(He, If, Why) only I had a friend," Bat (final, said, often) thought. "If I had a friend, (I, it, my) would have someone to play with. (A, As, If) I had a friend to talk (it, to, why), I think I'd finally be very (juicy, eating, happy)."

At night Bat would spread his (strong, asked, meals) wings and fly from the cave. (Say, He, I) would search for a nice apple (tree, bugs, the). Then he would perch on a (ground, branch, musty) and gobble down a juicy dinner. (You, Him, Bat) liked apples, and he loved plums. (Air, So, But) his favorite meals were those of (beetles, started, friend) and other bugs.

To catch bugs, (nice, Bat, dog) had to swoop through the air (with, has, teach) his mouth open. One night Bat (got, what, was) swooping through the air when he (yawned, think, bumped) into something solid and furry. Bat (damp, fell, hung) to the ground. He was scared (as, the, to) he looked up and stared into (at, the, on) yellow eyes of a cat.

"Oh, (sounds, please, solid) don't eat me!" Bat cried as (I, me, he) covered his tiny head.

"I don't (plan, teach, down) on eating you," said the cat. "(And, Only, Don't) have a heart attack."

"Why wouldn't (say, you, he)?" Bat asked as he looked into (the, an, day) cat's yellow eyes.

The cat yawned. "(To, His, My) owners feed me plenty of cat (cave, food, got) so I don't have to hunt. (To, Up, A) be honest, I'm bored most of the (time, said, wings)."

"Would you consider being my friend?" (said, would, asked) Bat. "I'll teach you how to (bugs, hang, still) upside down, and I'll even teach (you, his, is) how to catch bugs. What do (you, my, when) say?"

"That sounds wonderful," said the (the, hung, cat). "You've got a deal. When do (his, you, hunt) think we could start? Do you (juicy, think, feed) you could teach me how to (will, was, fly) too? I think I'm going to (feed, the, like) being friends with you."
APPENDIX K

AIMSWEB MAZE PASSAGE ANSWER KEY
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APPENDIX L

READING ATTITUDE LIKERT SCALE
Directions. Please rate how strongly you agree or disagree with each statement by placing a (X) in the appropriate box.

<table>
<thead>
<tr>
<th>1. I enjoy reading.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. I think I read well.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. I think reading is easy.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. I prefer to figure out what a big word is instead of someone telling me.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. I like reading out loud in front of people.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Not including homework I read when I am not in school.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. I wish I could spend more time reading.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. I like going to the library to check out interesting books.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>9. When I have money I buy magazines or books.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>10. I ask others to buy me books.</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Disagree</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2 Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Strongly Agree</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name ______________________________     Total ________
Directions: Please provide an answer for each question.

1. What did you like most about the peer tutoring sessions?

2. What did you like least about the peer tutoring sessions?

3. What would you have changed about the peer tutoring sessions?

4. Would you participate in peer tutoring sessions again?

5. Do you think your participation in the peer tutoring sessions will be helpful for you in your classes? If yes, how so? If no, why not?
APPENDIX N

TEACHER QUESTIONNAIRE
Directions: Please provide an answer for each question.

1. Do you think this was an effective intervention for improving your students reading fluency?

2. Do you think this was an effective intervention for improving your students reading comprehension?

3. Would you consider using peer-mediated instruction in your classroom?

4. What do you perceive would be the most difficult aspect of peer-mediated instruction in your classroom?

5. Would you suggest the use of peer-mediated instruction to other teachers?

6. Would you use Corrective Reading Direct Instruction in your classroom?
APPENDIX O

SAMPLE CORRECTIVE READING SCRIPT
**EXERCISE 1**

**SOUND COMBINATION: ai**

**Task A**
1. Open your Student Book to Lesson 34. Touch the letters *a-i* in part 1.

<table>
<thead>
<tr>
<th>1</th>
<th>ai</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

wait  wait
taunt  pain
sail  grain
main  fail

The letters *a-i* go together and make the sound /aɪ/. What sound? (Signal.) /aɪ/.
2. You're going to read words that have the letters *a-i*.
3. Touch the first word in column A. What word? (Signal.) Wait.
4. Spell *wait*. Get ready. (Signal for each letter.)
5. Next word. What word? (Signal.) Pain.
6. Spell *paint*. Get ready. (Signal for each letter.)
7. (Repeat steps 5 and 6 for sail, main.)
8. (Repeat steps 3-7 until firm.)

**Task B**
1. Touch the first word in column B. What word? (Signal.) Waited.
2. Next word. What word? (Signal.) Pain.
3. (Repeat step 2 for grain, fail.)
4. (Repeat steps 1-3 until firm.)

**EXERCISE 2**

**WORD READING**
1. Touch part 2.

<table>
<thead>
<tr>
<th>2</th>
<th>beaten  road  cheered</th>
</tr>
</thead>
<tbody>
<tr>
<td>real  keep  before</td>
<td></td>
</tr>
</tbody>
</table>

You're going to say the sound for the underlined part and then read the word.

**EXERCISE 3**

**WORD READING**
1. Touch the first word in part 3.

<table>
<thead>
<tr>
<th>3</th>
<th>gates  shape  waved  here's</th>
</tr>
</thead>
<tbody>
<tr>
<td>saving  shaved  five  broken</td>
<td></td>
</tr>
</tbody>
</table>

2. What word? (Signal.) Gates.
3. Next word. What word? (Signal.) Shape.
4. (Repeat step 3 for each remaining word.)

**EXERCISE 4**

**WORD READING**
1. Touch the first word in part 4.

<table>
<thead>
<tr>
<th>4</th>
<th>planted  worked  faster  people</th>
</tr>
</thead>
<tbody>
<tr>
<td>yelled  town  didn't  grabbed</td>
<td></td>
</tr>
<tr>
<td>seventeen  all  wool  slow  begged</td>
<td></td>
</tr>
<tr>
<td>planned  let's  you're  panting</td>
<td></td>
</tr>
<tr>
<td>handed  speed  ready</td>
<td></td>
</tr>
</tbody>
</table>

2. What word? (Signal.) Planted.
3. Next word. What word? (Signal.) Worked.
4. (Repeat step 3 for each remaining word.)

**EXERCISE 5**

**WORD-ATTACK SKILLS: Individual Tests**
1. (Call on individual students. Each student reads a row or column. Tally the rows and columns read without error. If the group reads at least 9 rows and columns without making errors, direct all students to record 4 points in Box A of their Point Chart.)
2. (If the group did not read at least 9 rows and columns without errors, do not award any points for the Word-Attack Skills exercise.)
APPENDIX P

TUTOR PROCEDURAL INTEGRITY CHECKLIST
<table>
<thead>
<tr>
<th>Instructional Behaviors</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follows the lesson script</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Models the skill (i.e., says, “I’ll touch these letters and say the sounds.” “Touches s, pauses, and says “/sss/”)</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Provides opportunity for tutee to practice the target skill (i.e., asks tutee, “Your turn. Say each underlined sound then word in part 3.&quot; Say “What sound? What word”)</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Uses materials (white board, student workbook) as outlined in the lesson</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Immediately delivers error correction according to the script</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Uses appropriate pacing during lesson</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Provides adequate signal for tutee response</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Provides reinforcement (i.e. verbal praise)</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>During repeated reading provides corrective feedback following each oral reading of the passage</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Performs 1- minute timing at the end of the lesson.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Records the number of correct words and incorrect words read during 1-minute timing.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>After 1-minute timing the tutee is given performance feedback.</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Tutoring session point log completed</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Steps completed correctly / completed steps*

*N/A not to be included*
APPENDIX Q

DATA COLLECTION FORM
Group Number _________________________  Date _________________

Day  M_______  T _______   W _______   TH _______  F _______

Lesson #________  Completed   Not Completed

2 pts.   0 pt.

Accuracy of Lesson (Please circle one)

Perfect Work (0-2 errors)  Near perfect (3-5 errors)  Acceptable (5-7 errors)  Poor Accuracy (8 >)

3 pts.     2 pts     1 pt.     0 pt.

Attitude (Please circle one)

Positive attitude (0 reprimands)  Mostly positive (1-2 reprimands)  Acceptable (3-4 reprimands)  Needs to Improve (5> reprimands)

3 pts.     2 pts     1 pt.     0 pt.

Point Scale  8-7 points = 2 tickets
            6-5 points = 1 ticket
            4 or less points = no ticket

Comprehension questions

___ ?’s correct

1-minute timing

Attempt 1  ________ - ________ = ________
            Words read  errors  WRCPM

*Attempt 2  ________ - ________ = ________
            Words read  errors  WRCPM

Comments:

*repeated reading
APPENDIX R

TRAINING PROCEDURAL INTEGRITY CHECKLIST
Observer _______________________
Date _______ Start Time _______ End Time ______ Lesson# _______

**Instructions**: Based on observation check yes or no for each row.

<table>
<thead>
<tr>
<th>Instructional Behaviors</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional materials are ready for students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides adequate answers to student questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prompts tutor if necessary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides tangible and social reinforcers for tutor and tutees (i.e. candy and praise)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides performance feedback for tutor and tutees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Returns items and to its appropriate locations</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Steps completed correctly ________/ ________completed steps*

*N/A not to be included*
APPENDIX S

LIST OF REINFORCERS
Social reinforcers

- Praise
- Graph sharing with peers and staff

Tangible reinforcers

- Snickers® candy bar
- Milky Way® candy bar
- Mr. Goodbar®
- Kit Kat®
- Pop Tarts®
- Coca Cola® 2-liter
- 36 X 48 inch Posters (2)
APPENDIX T

SOUND PRONUNCIATION FORM
### SOUND PRONUNCIATION GUIDE

<table>
<thead>
<tr>
<th>Sound</th>
<th>As in</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>and/e</td>
<td>continuous</td>
</tr>
<tr>
<td>b</td>
<td>bag</td>
<td>stop</td>
</tr>
<tr>
<td>c</td>
<td>cat</td>
<td>stop</td>
</tr>
<tr>
<td>d</td>
<td>dad</td>
<td>stop</td>
</tr>
<tr>
<td>e/e</td>
<td>end/me</td>
<td>continuous</td>
</tr>
<tr>
<td>f</td>
<td>fit</td>
<td>continuous</td>
</tr>
<tr>
<td>g</td>
<td>go</td>
<td>stop</td>
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<tr>
<td>h</td>
<td>he</td>
<td>stop</td>
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<tr>
<td>i</td>
<td>if/ife</td>
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<tr>
<td>j/k</td>
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<td>stop</td>
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<tr>
<td>l</td>
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<td>odd/ote</td>
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<td>sat</td>
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<td>t/u/v</td>
<td>up/use/van</td>
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<td>w</td>
<td>went/with</td>
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<td>ai/ai</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sound</th>
<th>As in</th>
<th>Type</th>
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APPENDIX U

STUDENT PARTICIPANTS’ PRETEST & POSTTEST ADMINISTRATION DATES
<table>
<thead>
<tr>
<th>Participant</th>
<th>Pretest Date</th>
<th>Posttest Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutee 1</td>
<td>2/11/2008</td>
<td>5/22/2008</td>
</tr>
<tr>
<td>Tutee 2</td>
<td>2/13/2008</td>
<td>5/23/2008</td>
</tr>
<tr>
<td>Tutor 1</td>
<td>2/11/2008</td>
<td>N/A</td>
</tr>
<tr>
<td>Tutor 2</td>
<td>2/11/2008</td>
<td>5/19/2008</td>
</tr>
<tr>
<td>Tutor 3</td>
<td>2/13/2008</td>
<td>5/21/2008</td>
</tr>
<tr>
<td>Tutor 4</td>
<td>2/13/2008</td>
<td>5/21/2008</td>
</tr>
</tbody>
</table>