

## Effects of Gifted Peers Tutoring Struggling Reading Peers

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This study examined the effects of a peer tutoring program that used a Direct Instruction (DI) reading curriculum. Students identified as gifted and talented delivered instruction, using the DI reading program, to their struggling reading peers. The students used a cross-skill peer tutoring instructional format. The results indicated that all of the students who received tutoring increased their reading rates and that most made gains pretest to posttest on a standardized measure. Additionally, the tutors demonstrated that they were able to implement the DI program with fidelity and proved to be effective instructors.

In the United States there remains a struggle to teach all children to become proficient readers. Low performing urban schools throughout the United States are in critical need of remedial reading instruction due to higher reading failure rates among the poor and minority student populations within them (Moats, 1999). *The Nation's Report Card: Reading 2011*, revealed that about half of all Native American, Hispanic, and African American 4<sup>th</sup> graders demonstrated a reading achievement level that was below *Basic* (NCES, 2011). Poor reading skills often results in a decreased probability that one will be able to achieve academically or sustain employment in a typical job; consequently, the outcomes for many who fail to read are school dropout, unemployment, and incarceration (Moats, 1999).

Many urban schools are inundated with students at-risk for reading failure. For

the most advantageous results, children at-risk of reading failure should be identified and screened early with measures that assess important reading skills such as: phonological awareness, alphabetic understanding, and automaticity (Kame'enui, Simmons, & Coyne, 2000). Ideally, these children would receive systematic and strategic intervention at a time no later than kindergarten (Kame'enui et. al. 2000).

Effective reading instruction must be implemented at an efficient rate because the end of the third grade marks a critical time when the basic reading skills of struggling learners typically do not improve. Beyond the third grade students are expected to complete higher level tasks and basic reading skills are no longer directly taught (Chall & Jacobs, 2003). Consequently, older struggling readers who do not adequately make the reading transition from low to higher level skills find

school to be an aversive environment associated with consistent academic failure.

There are unique challenges to overcome when providing reading interventions for older struggling readers. For example, they usually avoid reading practice resulting in deficits in the areas of phonological awareness, fluency, vocabulary, reading comprehension, and speech (Moats, 2001). Furthermore, ineffective reading strategies employed by struggling readers contrast with effective reading strategies.

If evidence-based interventions are implemented it is possible to improve reading deficiencies. For example, Shippen, Houchins, Steventon, and Sartor (2005) conducted a six-week study that compared the effects of two evidence-based reading programs for middle school struggling readers. Both programs focused on decoding skills and required explicit, systematic instruction by the teacher. The use of each program resulted in positive student gains in word reading efficiency, reading rate, reading accuracy, and reading fluency. Using a different evidence-based intervention, Musti-Rao, Hawkins, and Barkley (2009) assessed the effects of peer-mediated repeated readings to assist in the reading development of 12 fourth graders with and without disabilities and found that all students made gains in their oral reading fluency rates.

In order for struggling readers to improve their reading skills intensive reading instruction is required (NICHD, 2000). The most intensive reading instruction involves one-on-one or small group instructional arrangements (Cartledge, Gardner, & Ford, 2009). However, given the large number of struggling readers in urban schools there simply are not enough teachers to provide the necessary one-on-one or small group instruction. Therefore, efforts to be more resourceful and utilize already existing instructional capacity must be an everyday practice.

An effective method for increasing the number of instructors available is through the use of peer tutors. Peer tutoring is an efficient instructional method that permits a teacher to provide in-depth specific instruction to an individual student while at the same time ensuring that the remaining students in the classroom remain actively engaged with the assigned task (Harper & Maheady, 2007). Peer tutoring is an empirically validated instructional tool that has systematically evolved over the years to accommodate the needs of ELL students and students with and without disabilities (Gardner, Nobel, Hessler, Yawn, & Heron, 2007; Saenz, Fuchs, and Fuchs 2005). Furthermore, under the Response to Intervention model, peer tutoring can be utilized as an effective intervention for at-risk students. For example, in a study conducted by Dufrene et al. (2010), peer tutoring was used as a tier two intervention for four at-risk students. The tutors delivered a treatment package that consisted of listening passage preview and repeated readings. As a result of the intervention, each tutee demonstrated improved fluency.

Classwide peer tutoring (CWPT) has been particularly effective for producing positive results in the reading skills of minority, urban elementary students. Kourea, Cartledge, and Musti-Rao (2007) conducted a study using CWPT with six urban elementary students that resulted in increases in reading fluency and comprehension. Additionally, all students acquired more sight words during CWPT than teacher-led instruction. Another CWPT model, peer-assisted learning strategies (PALS), places peers in dyads who partake in partner reading with brief retellings, paragraph shrinking, and prediction relay (Fuchs et al., 2001). Fuchs, Fuchs, and Kazdan (1999) used peer-assisted learning strategies (PALS) to assess what effect it would have on struggling readers in high school. 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

The multidimensional function of peer tutoring has been documented. For example, Saenz, Fuchs, and Fuchs (2005) used PALS with English language learners (ELL) with and without disabilities and it helped them make 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. Peer tutoring can also be used as an effective classroom management tool that can concurrently improve social and academic behaviors (Sutherland & Snyder, 2007). Finally, peer tutoring can produce positive effects outside of the typical school environment. Gardner and colleagues (Gardner, Cartledge, Seidl, Woolsey, Schley, & Utley, 2001) found that utilizing peer tutoring in an after-school program helped improve the reading, math, and social skills of at-risk students. In another study, Yawn (2008) implemented a peer tutoring program in a residential facility for adjudicated youth. Findings on a standardized measure revealed that all participants made gains from pretest to posttest; all tutees increased their oral reading fluency and most exhibited reading comprehension gains.

Providing one on one or even small group reading instruction in middle school for students who have difficulties with basic reading skills can be a difficult task for a teacher. With pressures to cover the curriculum and manage all student behaviors, time for providing remedial instruction is extremely limited. As students with reading difficulties advance through the grades they become more alienated from daily academic

tasks because they are expected to process information from materials beyond their ability. Therefore, it is important that all students be afforded the opportunity to receive instruction that teaches them how to read effectively. Such instruction, when peer-mediated, must be delivered by a competent tutor. The academic level of the tutor can vary if he is well-trained and treatment integrity is ensured by the researcher. However, unique to the current study is that all tutors had high levels of academic achievement and were identified as gifted.

The purpose of this study was to examine the effects of gifted students' peer-mediated use of a Direct Instruction (DI) reading program (Engelmann, Hanner, & Haddox, 2002) on the reading skills of their struggling reading peers. Specifically, two research questions were of interest:

1. What effect will peer tutoring using the DI program have on the struggling readers' reading fluency?
2. What effect will peer tutoring using the DI program have on the reading achievement of the struggling readers?

## Method

### Participants and Setting

The students identified to participate as those being tutored (tutees) were recommended by their classroom teachers. Although special education placement was not a requirement for participation -nor were IEP's reviewed- the teachers who were solicited noted that many students who were selected received special education services. The students identified to participate as tutors were recommended by the gifted education teacher. Overall, 16 students were identified as candidates for participation (8 tutors and 8 tutees). However, many candidates had attendance issues, therefore, only four dyads (tutor and tutee pairs) were chosen to participate in the study (*see* Table 1).

Table 1  
Description of Participants in the Tutoring Program

Student	Role	Placement	Grade	Age	Race	Gender
Brianna	Tutor	N/A	7	13.3	Black	Female
Chelsea	Tutor	N/A	7	13.3	White	Female
Dwayne	Tutee	C	6	11.11	Black	Male
Katie	Tutee	B2	6	11.11	White	Female
Raquel	Tutee	B1	6	11.3	Black	Female
Richard	Tutor	N/A	7	12.11	Black	Male
Shah	Tutee	B1	6	12.0	Black	Female
Stephen	Tutor	N/A	7	12.11	Black	Male

*Note.* Students ages (years.months).

The study took place at a middle school in a large Midwestern city. The school's enrollment was 467 students. The school was located in an economically impoverished neighborhood and 90.3% of all the students received free or reduced lunches. The school population consisted of mostly black and white students (68% and 29% respectively). Only 34.4 % of 6<sup>th</sup> graders read at or above a proficient level (Ohio Department of Education, 2006).

### Definition and Measurement of Dependent Variables

Oral reading fluency was defined as the rate and accuracy of words read aloud in one minute. The reading passage at the end of each DI lesson was used by the tutor to conduct 1-minute timings with his respective tutee to track the number of correctly read words and errors. Errors were defined as mispronunciations, omissions, insertions, substitutions, reversals, and pausing at a word for three seconds or more. Self-corrections within three seconds were not counted as errors.

Reading achievement was defined as a tutees' scoring on the Woodcock Reading Mastery Test-Revised (WRMT) (Woodcock, 1987). Pre and Post test data from three

subtests of the WRMT (Word Identification, Word Attack, and Passage Comprehension) were collected to measure the effects of the intervention.

### The Tutoring Intervention

**The Direct Instruction reading program.** The DI program was used for the reading instruction throughout this study. It is a scripted program that has two strands; one, with a focus on decoding, and another with a focus on reading comprehension. It is designed to strengthen the skills of students who have received instruction in these areas but need remedial and/or supplemental help. Only the decoding strand was used in this study. It consists of four levels: A, B1, B2, and C; of which, only levels B1, B2, and C were used. The complexity of each level varies. Specifically, levels B1 and B2 focus on individual letter sounds, letter combinations, and basic decoding skills such as blending and segmenting whereas level C moderately focuses on basic decoding skills advancing to more complex word attack skills (Polloway, Epstein, Polloway, Patton, & Ball, 1986). As students progress through a level they build on previously learned skills and are taught increasingly difficult reading tasks.

**Peer tutoring.** Cross-skill tutoring was the instructional grouping that was utilized in this study. During the peer tutoring session the tutors were responsible for delivering the DI lesson, providing corrective feedback (e.g., “Stop, that sound is \_\_\_; what sound? “) when necessary, and conducting the 1-minute oral reading timing.

### **Experimental Design**

A multiple baseline across participants design was used (Baer, Wolf, & Risley, 1968). When using multiple baseline designs the intervention is systematically implemented in a staggered manner across multiple participants. A functional relationship is established when the intervention has been applied and behavior change has occurred.

### **Procedures**

**Tutor training.** Tutors were trained in four 30-minute sessions during the school’s homeroom period. Each session had a specific skill focus and was built upon during the successive training sessions. During session one, the tutors’ phonemic awareness was assessed and corrected as needed. During sessions two and three, the DI program was introduced, modeled and practiced by the tutors. Additionally, the tutors were trained to record 1-minute timing data and graph correctly read words and errors. During the final tutor training session, the tutors formed dyads amongst themselves. One student took on the role of tutor and the other tutee. A complete tutoring session was practiced. After roles were reversed, another session was practiced.

**Pre-assessment.** All tutees were assessed by the author before the intervention, using the WRMT Word Identification, Word Attack, and Passage Comprehension subtests. Additionally, the DI program’s placement test was administered to each tutee by the author to

determine which level of the program the tutee would receive instruction from (*see* Table 1).

**Baseline.** During the baseline condition the tutor did not provide any instruction with the DI program materials. The tutor instructed the tutee to open the student book to a specific lesson towards the back of the book (passages at the back of the book were used because it was known that the study’s time constraints would prohibit the use of those lessons) and conducted a 1 – minute timing.

**Tutoring sessions.** Each tutee and tutor was picked up from class in the morning, by the experimenter or an assistant, for a 30-minute time period. To avoid the participants’ frequent removal from the same class, the participants’ pick up alternated from session to session between the first period and second period.

The tutoring sessions began with the author briefly greeting and reminding each participant of the expected behaviors. The tutor directed his/her respective tutee to open the student book to the lesson of the day. The tutor followed the script exactly as it was written and the tutee followed along in his/her student book responding when prompted. At the conclusion of each lesson, the short passages were read aloud by the tutee and the accompanying questions were completed. The tutor silently read along as the tutee read aloud, and he provided immediate corrective feedback as necessary. Also, as the tutor followed along he stopped the tutee to ask comprehension questions, supplied in the teacher’s manual. Using the same passage the tutor conducted a 1-minute timing with the tutee and graphed the results (i.e., correct words read per minute; errors per minute). The tutor shared the results of the 1-minute timing with the tutee. If time permitted, the tutee worked on the lesson’s accompanying workbook pages, with the tutor’s assistance. If expectations were

followed, upon exiting they were able to choose a reinforcer (e.g., pencil, candy, etc.).

**Probes.** At least one, 1 -minute timing probe was conducted with each tutee during the tutoring phase of the study. Maintenance was assessed on all but one tutee three weeks after the peer tutoring sessions. The same procedures utilized during the baseline condition of the study were used when probes were conducted.

## Results

### Reliability

**Interobserver agreement.** Across all dyads, a second observer collected data on the one minute timings 45% of the sessions. An agreement was defined as the observer and the tutor both recording a word read as correct or as an error. The number of agreements was divided by the number of agreements plus disagreements and multiplied by 100% to obtain a percentage agreement score. Interobserver agreement averaged 96.75% (range, 83.3% to 100%).

**Procedural integrity.** The author and graduate assistants measured procedural integrity during 29% of the tutoring sessions. A procedural checklist that outlined the necessary steps for a complete tutoring session was used to assess implementation accuracy. The average procedural integrity was 96% (range, 80%-100%).

### Oral Reading Fluency and Pretest-Posttest

Figure 1 depicts the oral reading fluency rates for the four tutees. During baseline, all tutees oral reading fluency rates were low and each had relatively high errors. Implementation of the intervention resulted in an increase in the number of correctly read words per minute (CWPM) and a decrease in the number of errors committed by the tutees. Additionally, all but one tutee

had 100% non-overlapping data points. Raquel produced a 47.7% gain in CWPM and an approximate decrease of four errors from baseline to the experimental condition. Due to illness, Katie missed a significant number of tutoring sessions. Nevertheless, a positive effect was evidenced by the 25.4% increase of CWPM from baseline to intervention. Beginning at session 10, Shah exhibited a substantial increase in her CWPM. Overall, she had a 41% increase of CWPM from baseline to intervention. Across all tutees, Dwayne had the greatest gains. He increased from a mean 100.6 (range = 86-118) CWPM during baseline to a mean 147.2 (range = 122-175) CWPM during the intervention.

The reading probes that were conducted during the intervention produced mixed results. The maintenance probes that were conducted with the three tutees resulted in higher mean CWPM than that of baseline. Specifically, Raquel had a mean CWPM of 89.5 (range = 87-92); Shah had a mean CWPM of 88.5 (range = 76-101); and Dwayne had a mean CWPM of 121.5 (116-127).

From pretest to posttest on the Woodcock Reading Mastery Test-Revised (WRMT) Word Identification subtest two out of four tutees showed marked gains, and the other two tutees yielded negative results. Additionally, three out of four tutees had significant gains from pretest to posttest on the Word Attack, and the remaining tutee had a significant decline (Table 2).

### Discussion

The purpose of this study was to evaluate the effects of gifted students tutoring struggling reading peers, using a Direct Instruction program. Overall, oral reading fluency rates increased for all tutees following the implementation of the

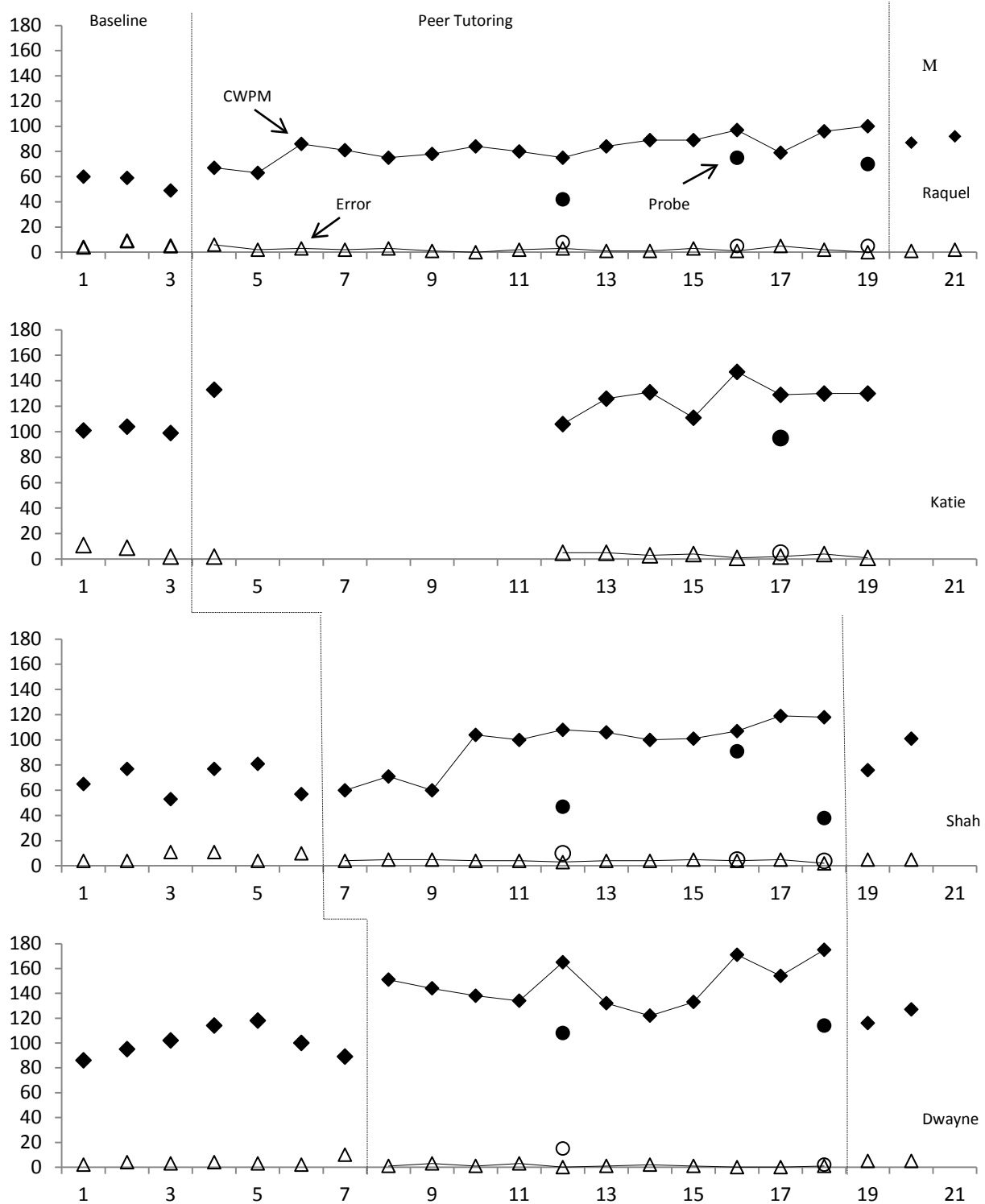


Figure 1. Multiple baseline of the tutees' reading fluency. CWPM = Correct words per minute. M = Maintenance.

Table 2

Results from Pretest Posttest Measure

*Note.* Grade equivalent scores indicated (raw scores are indicated in parentheses).

Woodcock Reading Mastery Test-Revised (subtests)									
Tutee	Word Identification			Word Attack			Passage Comprehension		
	PRE	POST	GAIN	PRE	POST	GAIN	PRE	POST	GAIN
Raquel	2.4 (45)	2.2 (41)	-0.2 (-4)	2.8 (16)	1.5 (5)	-1.3 (-11)	1.8 (17)	2.0 (20)	0.2 (3)
Katie	3.1 (59)	4.2 (66)	1.1 (7)	2.2 (11)	4.3 (24)	2.1 (13)	2.7 (26)	4.4 (36)	1.7 (10)
Shah	2.6 (50)	2.5 (49)	-0.1 (-1)	3.7 (21)	4.4 (25)	0.7 (4)	2.2 (22)	2.6 (25)	0.4 (3)
Dwayne	2.8 (57)	6.3 (77)	3.5 (20)	3.2 (18)	6.9 (33)	3.7 (15)	2.7 (26)	2.9 (28)	0.2 (2)

intervention. Furthermore, peer tutoring proved to be an efficient and effective instructional method. This reaffirms studies that have shown the positive effects of peer tutoring (Gardner et al., 2001; Kourea et al., 2007), as well as the effectiveness of the *Corrective Reading* program (Harris, Merchand-Martella, & Martella, 2000; Yawn, 2008).

Results from the *Woodcock Reading Mastery Test-Revised* (WRMT) were mixed. On the Word Identification and Word Attack subtests it was hypothesized that all tutees would either show gains or no change from pretest to posttest because those assessments are aligned closest with the skills targeted during the peer-mediated instruction. However, it was the Passage Comprehension subtest in which all tutees demonstrated gains from pretest to posttest. Though, the ability to decode is a prerequisite skill for reading comprehension (Bursuck & Damer, 2011), this result was surprising because strategy instruction is typically the most effective method for improving reading

comprehension (NICHD, 2000) and it was not provided in this intervention.

Among all tutees Dwayne made the most significant gains on both CWPM and the WRMT. As noted, assessments administered to Dwayne prior to the intervention revealed that he was the strongest reader, among all of the tutees. He demonstrated that with structure his reading skills will continue to flourish and he will grasp the more complex processes of reading at a greater rate than his weaker reading peers. Stanovich (1986), equated this process to the concept that the “rich get richer and the poor get poorer.” Specifically, he termed this phenomenon as the Mathew Effect; explaining that the existing reading achievement gap would persist because, as opposed to their struggling reading peers, stronger readers would engage more often in independent reading, and by doing so continuously improve higher order reading skills such as vocabulary and comprehension (Bursuck and Damer, 2011).



There are significant limitations in this study. First, baseline and probe data were collected by using reading passages towards the back of the DI texts. By design, the reading passages of the text become increasingly more difficult. Therefore, more reliable baseline and probe data may have been acquired by using randomly selected passages from the front, middle, and back of the book. Second, completion of a lesson required that the tutee read the passage, received corrective feedback and answered imbedded comprehension questions. This allowed the tutee exposure to the passage prior to having the 1-minute timing administered. Therefore, it is conceivable that the CWPM data may be inflated. Future research should control for this further by evaluating the effects of peer-mediated use of the DI program on passages from a different text.

Another limitation of this study is the limited number of participants in this study. Although, the number of participants in this study is adequate for a single subject research design, the strength of a treatment in a multiple baseline design is determined by the graphical replication of desired effects (Cooper, Heron, & Heward, 2007). Additionally, the sample size of this study significantly limits the scope of generalization. Therefore, future research should include a larger sample size.

A final limitation of this study was the reinforcers that were used. Initially, the reinforcers held high value, however as the study progressed its value did not sustain. Though, all participants remained compliant throughout the study it became evident towards the end that they viewed their participation as a demand and were no longer excited to participate. It may be necessary to assess the value of reinforcers throughout the study and change them according to solicited participants' requests.

In summary, this study examined the effects of peer tutoring, using a Direct Instruction reading program, on oral reading fluency and academic achievement. The results showed that all tutees increased CWPM and that most made gains on the WRMT subtests. Additionally, the tutors were able to implement the DI program with fidelity and proved to be effective instructors. Due to the numerous demands that are placed on our schools limited number of teachers, this study shows that using gifted students specifically and peer tutoring in general can be an efficient instructional model to help remediate the skills of struggling readers.

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