

## The Efficacy of ClassWide Peer Tutoring in Middle Schools

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### Abstract

The majority of research on the efficacy of ClassWide Peer Tutoring (CWPT) is based on research with urban elementary students (Rohrbeck, Ginsberg-Block, Fantuzzo, & Miller, 2003), with much less research in middle schools. This study investigated CWPT with 975 middle school students in 52 classrooms, grades 6 through 8, over a three-year period. A mixed design combining features of both group (interrupted time-series) and single-subject reversal designs was used to evaluate the effects of traditional teacher-led instruction vs. CWPT. Results favored CWPT with effect sizes, based on weekly quizzes, indicating moderate to large effects overall ( $M = 1.11$ ) but with some range across classrooms and content. Implications for future research and practice are discussed.

The identification and sustained use of effective interventions is of critical concern in urban schools where illiteracy and academic failure are high (Greenwood et al., 1993; Hannaway, 2005; National Association of Educational Progress, 2003; U.S. Dept. of Education, 1997—the 19<sup>th</sup> Annual Report to Congress). Given higher expectations for student achievement and conduct outcomes at the forefront of present educational policies, (i.e., IDEA Act of 2005, No Child Left Behind), general and special education teachers must be able to systematically apply effective instructional and behavioral interventions across student groups diverse in culture, language, ability, and level of achievement in the subject matter (Utley, Obiakor, & Kozleski, 2005). Thus, it is imperative that the field produce empirically validated interventions containing effective instructional features that promote safe, structured classroom environments with

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acceptable levels of student productivity and appropriate classroom behavior. These interventions are needed in all schools but particularly so in urban schools containing extremely diverse populations (Flood & Anders, 2005).

One solution is to supplement general education instruction with peer-assisted, collaborative instructional activities, wherein students spend time supporting each others' learning through class-wide peer tutoring: CWPT (Greenwood, Delquadri, & Hall, 1989; Rohrbeck, Ginsberg-Block, Fantuzzo, & Miller, 2003). CWPT enables general educators to meet the instructional needs of a broad range of students by organizing the classroom into dyads during a portion of weekly instruction. Tutoring dyads, when taught peer-assisted learning strategies to promote research-based reading skills (i.e., phonemic awareness, decoding, and comprehension among others) aligned with teacher-led activities in the reading curriculum are highly effective and relatively easy to replicate (Rohrbeck et al., 2003). Distinct advantages of CWPT are that: (a) groups of students can operate on different levels of the curriculum, employing different procedures meeting the needs of the lowest and highest functioning students without overwhelming the students or the teacher, (b) students receive one-on-one mentoring with corrective feedback, (c) the volume of academic responding is dramatically increased, (d) mastery and fluency with new material are established rapidly, (e) academic, social, and behavioral skills are taught at the same time, (f) students with disabilities are able to access the general education curriculum, (g) teachers and students find CWPT an acceptable practice, and (h) cost and resources are highly reasonable (Greenwood, Delquadri, & Carta, 1997).

CWPT has been validated for elementary-aged students at-risk and with mild disabilities (e.g., Greenwood, 1991; Kamps, Barbeta, Leonard, Delquadri, & Hall, 1994; Utley, Greenwood, & Mortweet, 1997). Research has shown that students enrolled in CWPT in multiple subject areas (i.e., reading and math) acquire skills faster, retain more of what they learn, and make greater advances in academic achievement when compared to traditional instructional methods. Additionally, follow-up results have shown that CWPT is a protective factor in terms of significantly higher growth in achievement, statistically fewer at-risk students eventually placed into special education services (MMR, LD, & EBD) after grades 6 and 7 (Greenwood, Terry, & Utley et al., 1993), and fewer students dropping out of school prior to graduation (Greenwood, 1991).

However, with a few exceptions (e.g., Bell, Young, Blair, & Nelson, 1990; Maheady, Sacca, & Harper, 1988; Mastropieri, Scruggs, Spencer, & Fontana, 2003), the vast majority of work has been in elementary level classes targeting basic academic skills. Examples of

secondary school peer tutoring studies with students with academic and behavioral risks have included (a) reciprocal tutoring in comprehension strategies by middle school students with learning disabilities and mild mental retardation (Mastropieri et al., 2001); (b) peer tutoring among adolescents with behavioral disorders (Scruggs, Mastropieri, & Richter, 1985); and the use of peer assisted learning strategies (PALS) and peer tutoring formats with students in remedial and special education high school classes (Fuchs, Fuchs, & Kazdan, 1999; Harris, Marchand-Martella, & Martella, 2000). In one noteworthy study, 30 students in a middle school for students with emotional or behavioral disorders used peer tutoring procedures to teach paragraph summarization (Spencer, Scruggs, & Mastropieri, 2003). Students scored higher on their social studies content tests and showed higher levels of on-task behavior during the tutoring conditions compared to traditional instruction.

Results from these few studies are encouraging, however, more efficacy work is needed for these findings to be considered more than just preliminary. Studies are needed that experimentally validate CWPT procedures targeting middle school level students in general education classrooms, as well as in special education settings. In addition, research reports that additional components with CWPT are needed for this population to support increased needs for motivation and classroom behavior management. For example, researchers report that motivation is an issue for secondary level students who have a history of reading failure, and structured reinforcement systems during peer tutoring may be important (Fuchs et al., 1999). It is suggested that structured behavior management components be included to ensure the active participation of secondary-level students (Fuchs et al., 1999; Mitchem, Young, West, & Benyo, 2001). These components could be added to CWPT from its initiation, given a sense by the teacher of need and appropriateness, or added later given that CWPT results support doing so.

One easily used motivational strategy combined with CWPT is a simple lottery system to engender interest and excitement. For example Fuchs and colleagues (Fuchs et al., 1999) used lottery tickets as a component to peer assisted learning/tutoring in high school classes. Behaviors and learning of students improved with the lottery system. A second effective strategy for student behavior management with parallel features to CWPT is "self-management." Self-management encompasses several components that have been shown to be instrumental in improving individual students' social and behavioral performance including: (a) direct instruction in appropriate rule-following and social interaction behaviors including modeling and

opportunities for practice and feedback, (b) student self-assessment of their classroom behavior, and (c) feedback and reinforcement for engagement in appropriate behaviors (e.g., Colvin, Kameenui, & Sugai, 1993). Intervention research on student self-management has shown increased on-task behavior (e.g., Maag, Reid, & DiGangi, 1993), increases in student productivity such as levels of responding and percent correct on assignments (e.g., McDougall & Brady, 1998), and decreases in disruptive classroom behavior (e.g., Minner, 1990). In addition, recent reports have shown equal or better outcomes with use of *ClassWide Self-Management* (CWSM) in terms of increasing classwide academic performance and reducing inappropriate behaviors for elementary and secondary level students (e.g., Babyak, Luze, & Kamps, 2002; Mitchem et al, 2001; Carpenter & McKee-Higgins, 1996; Gansle & McMahon, 1997; Kern, Dunlap, Childs, & Clarke, 1994; Salend, Whittaker, & Reeder, 1992; Smith, Young, Nelson, & West, 1992).

In summary, few studies of CWPT in the literature have addressed the efficacy of CWPT used to teach (a) multiple content areas demanding use of literacy skills (i.e., narrative and expository text), and (b) when used with and without a combination of self-management and motivational (lottery) components in support of urban middle school students. Thus, in order to advance what is known of the efficacy of CWPT components, we tested the general hypothesis that middle school teachers could implement CWPT in their classrooms, and that students' academic and behavioral outcomes would be significantly improved by use of CWPT compared to traditional teacher-led instruction in a large sample of classrooms and students including a diverse population of learners. We also examined the feasibility of CWPT in terms of the need for instructional adaptations for English Language Learners (ELL) and students with mild disabilities. Current recommendations include the use of evidence based practices for ELL learners including strategies such as peer tutoring to increase opportunities to respond (Anderson et al., 1998); and CWPT intervention has been applied successfully for elementary school ELL students (Mayer, Utley, Perdomo-Rivera, & Greenwood, 2003). Thus, the following research questions were investigated:

1. What was the mean and variation in the fidelity of CWPT implemented by teachers? Based on prior CWPT research in elementary schools, it was hypothesized that initial training and teacher implementation with progress feedback provided by research staff would lead to generally high levels of implementation fidelity.
2. Compared to teacher-led instruction baseline, is use of small group/peer tutoring, teacher scripted behaviors, and students'

- classroom behaviors during CWPT instruction changed and improved? Based on prior CWPT research, we hypothesized that the immediate directly observed effects of the implementation of CWPT would be: (a) increased use of peer teaching, (b) increased active teaching behavior (i.e., supervision, interactions with students), and (c) increased on-task and active student academic responding and decreased inappropriate, competing behavior.
3. What was the mean and variation in middle school classroom effect sizes? Based on prior CWPT research in elementary schools, it was hypothesized that implementation of CWPT would lead to superior effects in weekly content test accuracy scores.
    - a. Are significant differences in mean effect sizes observed between subject matter content (i.e., in reading vs. social studies)?
  4. Are significant differences in effect sizes in weekly accuracy observed between urban vs. suburban classrooms? Given prior the effectiveness of CWPT reported in prior studies, we expected no difference in urban vs. suburban effect sizes.

## Method

### *Recruitment of Participants and Settings*

The aim of the study was to conduct as many replications of CWPT in middle school classrooms as possible within available resources, and to represent special education and culturally and linguistically diverse students in both urban and suburban settings. Thus, a two-stage sampling plan was implemented. At stage 1, middle schools in the Kansas City Metropolitan area were recruited for participation. The schools were in urban and suburban school districts (see demographics, Table 1). At stage 2, teachers responsible for classes teaching reading, social studies, and science in these schools were recruited for participation. Recruitment procedures at stage 2 included (a) presentations to the staff, and (b) identification of teachers willing to implement CWPT in one or more sections (class periods). This sampling plan was repeated in each of years 1 to 3 of the project in new schools (see Table 1). Thus, all interested teachers in each school were enrolled in the study.

### *Participants and Settings*

Based on the procedures described, teachers and students were enrolled from three urban middle schools (Years 1 and 2 = 2 schools, Year 3 = 1 continuing and 1 new school). Additionally, teachers and students from a large suburban middle school also participated (Year

2), and one 6th grade teacher in Years 2 and 3 in a suburban elementary school. Thirty-two (62%) of the 52 total classrooms were from urban schools. This resulted in the participation of a total of 25 teachers, their 52 classrooms (reading = 35, social studies = 12, and science = 5), and 975 students with parental permission (79% of all students) over the 3-year period (see Table 1). By gender, 54% were male, 46% female. While all students participated in CWPT and weekly quiz assessments, a target sample group of 3 to 4 lowest performing students was identified using teacher nomination in each classroom to receive classroom observation assessments. A total of 75 students were directly observed over the 3 years, 42 males and 33 females.

### *Measures*

A battery of measures, similar to prior CWPT research, were used to compare CWPT to traditional teacher-led instruction (e.g., Mayer et al., 2003; Greenwood, Carta, Kamps, Terry, & Delquadri, 1994; Kamps, Leonard, Potucek, & Garrison-Harrell, 1995). Measures of the independent variable reflected the occurrence and quality of the CWPT classroom intervention. These measures were procedural fidelity ratings and classroom observations. The ratings provided an evaluation of the percentage of specific CWPT implementation steps completed by the teachers. Observations allowed for assessment of the immediate effects of the intervention on the occurrence of peer teaching and key teacher behaviors associated with CWPT. Measures of the dependent variables included weekly content quiz scores (i.e., reading, social studies, and science) and direct classroom observations of students active academic responding and inappropriate, competing behavior.

*Quizzes.* Quizzes were conducted across both conditions either weekly or biweekly for all students depending on the schedules of the class period and the content lessons covered in novels or texts. Quizzes, developed by the researchers, contained 20-25 items from the curriculum and included a section on vocabulary (matching definitions and filling in the blank), and comprehension questions (see Appendix). Vocabulary and questions were taken from the published curriculum texts i.e., teacher materials, student texts and exercises and from Novel Units (<http://www.educyberstor.com/store/novelunits/index.html>), published materials to accompany instruction using novels (i.e., vocabulary and comprehension exercises). The same format was used for all quizzes to ensure consistency. The level of difficulty was directly related to the story/novel content. Though some variance was noted across novels, at least one baseline and intervention condition was implemented with each novel to control for level of difficulty.

**Table 1**  
**Overview of Study Design Based on Enrolled Participants**

Teacher ID	Subject	Condition	# of Classes	Year	# of Students	School ID*	SES
1	Reading	ABABAB	2	1	71	1	Urban
2	Reading	ABABCACA	3	1	57	2	Urban
3	Reading	AC	2	1	14	1	Urban
7	Reading	CACA	2	2	37	1	Urban
8	Reading	ACACA	1	2	16	1	Urban
8	Reading	ACACAC	1	3	28	1	Urban
19	Reading	AC	1	3	19	1	Urban
20	Reading	ACAC	1	3	19	1	Urban
21	Reading	ABABAB	1	3	29	1	Urban
22	Reading	ACACAC	2	3	49	3	Urban
10	Reading-SPED	ABABAB	1	2	6	2	Urban
9	Reading-SPED	ACAC	1	2	8	1	Urban

(continued overleaf)

Table 1  
(continued)

Teacher ID	Subject	Condition	# of Classes	Year	# of Students	School ID*	SES
6	Science	ACA	3	1	87	2	Urban
24	Science	ACA	1	3	19	4	Urban
25	Science	ACACA	1	3	26	4	Urban
4	Social Studies	ABCAC	3	1	85	2	Urban
5	Social Studies	ABCAC	1	1	25	1	Urban
2	Social Studies	ACAC	3	2	46	2	Urban
23	Social Studies	ACAC	2	3	53	3	Urban
11	Reading	BAB	4	2	76	5	Suburban
12	Reading	BA	2	2	28	5	Suburban
13	Reading	BAB	4	2	29	5	Suburban
16	Reading	AB	4	2	50	5	Suburban
15	Reading	ABABAB	1	2	17	6	Suburban
15	Reading	ABABAB	1	3	21	6	Suburban
14	Reading — SPED	ACAC	1	2	6	5	Suburban
17	Social Studies	ACAC	3	3	50	5	Suburban



**Table 1**  
**(continued)**

Teacher ID	Subject	Condition	# of Classes	Year	# of Students	School ID*	SES
Subtotal	Suburban		20		277		
Subtotal	Urban		32		698		
Subtotal	Reading		32		564		
Subtotal	Reading — SPED		3		20		
Subtotal	Social Studies		12		259		
Subtotal	Science		5		132		
Total			52	3	975	6	

Note. Abbreviations are as follows: SPED = Special Education. A = baseline, B = CWPT, C = CWPT plus lottery.

\* Demographics: School 1 = 630 students, 87% low SES as measured by free and reduced lunch status; 86% minority; School 2 = 425 students, 83% low SES, 89% minority; School 3 = 350 students, 82% low SES, 84% minority; School 4 = 470 students, 84% low SES, 76% minority; School 5 = 445 students, 57% low SES, 66% minority; School 6 = 510 students, 7% low SES, 16% minority. Schools 1-5 included grades 6-8; school 6 was an elementary school with 6th graders participating.

Quizzes were examined for reliability of scoring on 1-2 occasions for each classroom with 90% or higher reliability on percent correct.

*On-task data.* On-task data were collected in participating classrooms, with a minimum of one observation during baseline and one during CWPT intervention conditions. Experimenters (i.e., university researchers and graduate students) collected the on-task data. Data were collected using a paper pencil recording procedure and observing rows or tables of students in the class (usually 4-6). A 30-sec time sample procedure was used i.e., every 30 sec the observer would scan each row separately and record a "+" if all students in the row were on-task, and a "-" if any student was off task. On-task behaviors were defined as following directions, reading assignments, listening to (looking at) the teacher and appropriately getting ready for assignments. Off task behavior including doing anything other than the on-task behaviors and/or disruptive behaviors (e.g., working on the wrong task, talking to peers during independent work, drawing, not looking at the overhead during a lesson, arguing with peers or teacher, name calling, non-compliance, being out of assigned area). The on-task data were used as a general indicator of the level of engagement during a class period for all students. Reliability for on-task data were collected for training purposes with each observer obtaining 80% or higher on two occasions.

*Classroom observations.* Direct observations of the target student group using the CISSAR eco-behavioral computerized observation system (Greenwood, Carta, Kamps, Terry, & Delquadri, 1994) were conducted in all three years. The same experimenters collecting on-task data conducted the CISSAR observations. This code measured two categories of events providing information on the CWPT independent variable including occurrence of small group/peer tutoring and teacher's use of praise, reprimands, and teaching behaviors i.e., actively instructing a lesson or listening to students present, respond). The code also measured students' engagement in active academic engagement (e.g., reading aloud, silently, writing) and disruptive behaviors (e.g., inappropriate talking, inappropriate location). Two observations for each student during baseline and two observations during intervention were conducted for each student for the entire class period each time. Reliability for CISSAR data was collected during training with each observer obtaining 80% or higher across categories on two occasions.

Reliability during the study was computed using a CISSAR reliability program. Reliability was collected for 19 of 144 files (13%) in year 1. The mean reliability was 92% with a range of 83-97%. The mean Kappa was .822 (range, .634-.958). In year 2, reliability was col-

lected for 21 out 123 files (17%). The mean reliability was 93% with a range of 82-97%. The mean Kappa was .774 (range, .547-.953). In year 3 reliability was collected for 10% of files (9 of 93), with a mean of 91% (range, 80-96%) and a mean Kappa of .722 (range, .484-.897). Low agreements were generally found for low occurrence behaviors.

*Procedural fidelity of CWPT and Components.* Fidelity of implementation of the CWPT intervention was collected using a 38-item checklist with items pertaining to materials/transition (e.g., "all pairs have books, materials", "all pairs have point sheets"); teacher procedures (e.g., "teacher instructs students to move to partners", "teacher sets timer for vocabulary word practice", "teacher gives bonus points for correct tutoring"; and student procedures (e.g., "students follow along while partner reads orally", "tutor corrects error words", "tutor asks comprehension questions", "students award citizenship points"). Researchers completed the checklist for each participating class following observations of the CWPT. The number of probes varied based on time in intervention and staff availability.

### *Experimental Design*

The study used a quasi-experimental interrupted time series design (Shadish, Cook, & Campbell, 2002), in conjunction with the single-subject reversal design in each classroom (Kennedy, 2005) to demonstrate intervention effects and control rival hypotheses. The single subject reversal designs were used in all participating classrooms and varied in form (e.g., ABAB, ABABAB, ABACAC, BAB, CAC with A = baseline, B = CWPT with self-management; C = B + lottery). The choice of CWPT with the points and self-management component (B) or CWPT with lottery (C) depended on (1) a teacher's decision in advance to use the lottery system in conjunction with CWPT based on his/her knowledge of disruptive behaviors, (2) the researcher's recommendation to do so based on low on-task rates in baseline, or (3) less than expected effects with CWPT alone to manage behaviors or improve quiz scores. In several instances the order of conditions (i.e., BAB vs ABAB), was used to provide additional experimental control of order effects. One teacher in Year 1 and one teacher in Year 2 (2 classes) dropped out of the study with only one phase of baseline and intervention in place (AB).

### *Procedures*

*Baseline (A).* Baseline consisted of traditional teacher-led instruction. Generally it included the following activities: whole class instruction formats using novels for reading content (e.g., presentation of vocabulary, discussion of story concepts and main ideas, sequencing,

mapping), independent work (vocabulary definitions, worksheets), listening to audio tapes, and students taking turns reading aloud or answering questions. Social studies and science traditional instruction during baseline consisted of both large group instruction (reading and discussing sections of texts) and independent worksheets and activities from text lessons. Large group instruction occurred most frequently across content areas, and included low and variable participation levels for individual students engaged in turn taking routines (oral reading of story/text sections, asking and answering questions). Independent seat-work typically occurred for a portion of each class period, with occasional study sessions with a peer partner.

*CWPT + Self Management (B).* During this condition, CWPT and self management were combined. These new activities were added to the baseline condition. The addition of CWPT and self management was designed to (a) increase the opportunities to respond, volume of reading, and engagement with instructional activities; and (b) reduce disruptive and off-task behaviors. Teachers continued to use audiotapes and/or class oral reading for some novels and difficult text passages (10-15 min per class).

CWPT was used to support students' academic responding through (a) organization of the text content into sets of materials, (b) schedules using peer tutoring dyads 3 to 4 times during each instructional segment (e.g., book chapters, units), (c) close teacher monitoring, feedback, praise, (c) the use of student self- and peer-management during sessions including delivery of points for appropriate behavior and learning, and (d) frequent quizzes over content to ensure mastery and improved learning.

CWPT reading lasted 30-35 min per session with students assigned to pairs and teams. During the first half of the session one student served as a tutor and the partner as the tutee. The sequence consisted of (a) vocabulary practice using flash cards and definitions for 5 min, (b) oral reading of the text for 7-8 min, (c) comprehension questions over the chapter section (scripted initially and then student generated) for 4-5 min. Following this sequence the students reversed roles and the partner then became the tutor and the routine was repeated using the same materials. Teachers taught the students to generate questions by (a) modeling factual and inferential story questions, (b) asking the students to give examples, and (c) providing feedback on their examples. This was done as a group exercise following the reading of the story passages and occurred for 3-4 sessions until the students exhibited the question generation adequately during the tutoring sessions.

CWPT social studies and science procedures were similar in time and form. However, study guides tailored to the content instead

of comprehension questions were used. The tutoring format consisted of the tutee orally responding to vocabulary words and definitions, and questions and matching items on the study guide with the tutor checking answers from an answer key. Following the oral responding, tutees would complete the study guides as an independent activity.

In addition, CWPT procedures consisted of error correction, and the awarding of points for (a) appropriate responding and (b) citizenship. Error correction consisted of the tutee reading the correct vocabulary definition two times, or retrieving the correct comprehension response from text with the page reference provided by the tutor or reading the scripted answer. During oral reading, error words were pronounced correctly by the tutor, then by the tutee who also re-read the sentence. Points were awarded by tutors (i.e., peer management) for appropriate "responding behavior" by the tutees for each completed section of CWPT, i.e., 5 points for each correct vocabulary definition, 50-125 points for reading the passages 1-3 times, and 5 points for each correct comprehension question. Citizenship points (i.e., self-management) were also recorded at the end of each of the 3 tutoring sequences (vocabulary, oral reading, and comprehension questions). The points were awarded as follows: 40 points for honors level behavior, 30 points for satisfactory behavior, 20 for behavior needing some improvement, and 10 for unsatisfactory. This point schema followed the guidelines from a self-management program designed to improve classroom behaviors for adolescents (Young, West, Smith, & Morgan, 1991) and the adaptation of the procedures for class-wide use with peer dyads (Mitchem et al., 2001). Tutors and tutees agreed on the number of points earned based on their cooperative behavior for the session. Citizenship points were recorded by the tutor on the tutoring score sheet immediately following the recording of points for the tutoring activity, and again when students reversed roles at the end of then next tutoring segment. Thus the self-management component was implemented by the tutoring pair, rather than individuals twice per session.

*CWPT + lottery (C).* A lottery system was added to the B components. The lottery system was used in an effort to decrease student disruptive behaviors and increase teacher attention to appropriate behavior. In this condition, the teacher randomly distributed lottery tickets to students showing appropriate behavior during tutoring sessions. At the end of the sessions, students turned in their tickets for a drawing for small prizes (pencils, erasers, gel pens, potato chips). Drawings occurred weekly with an occasional surprise drawing to maintain motivation. Lottery tickets were used with CWPT in three reading classes and 4 social studies classes in Year 1, and with the majority of classrooms during Years 2 and 3.

*Modifications and accommodations.* Modifications made to CWPT for English language learners (ELL) included the use of Spanish translation for vocabulary words, and the use of audio-tapes of story passages as a model for oral reading. In urban classes, with students typically performing 2 to 3 years below grade level in reading, and for ELL and SPED students other accommodations included shorter passages for oral reading, selected novels that were at instructional level, and in a few cases oral reading of tests (teachers 1, 3, 9, 10, 14, and 20).

### *Statistical Analyses*

Simple descriptive statistics were used to display the mean and variation in variables of interest. To address the research questions, a number of steps were taken to create a consolidated database for a summary statistical analysis with classroom as the unit of analysis given the classwide nature of the CWPT intervention. The first step was to consolidate each single subject design in each classroom to a single AB (baseline vs. CWPT) comparison of means. These means reflected a synthesis of all students' scores for each test/observation for each week. These means were averaged across weeks/occasions and similar phases for the final AB set of classroom means. For example, if the design in a class was ABAB with 'A' as baseline and 'B' as intervention, all the A scores (A1 and A2) were averaged, and all the B scores (B1 and B2) were averaged. For the effect size computation all scores in the C (B + lottery) conditions in a class were included with the B, since the purpose was to show effects between tutoring and no tutoring. The second step for the quiz data was to compute each classroom's effect size using the formula  $ES = ((\text{Intervention mean} - \text{baseline mean}) / \text{baseline SD})$  described by Dunst, Hamby, and Trivett (2004). The AB means for classroom observations were graphed for visual inspection. The quiz baseline means and effect sizes were analyzed using one-way ANOVA. Due to the small number of science classrooms implementing CWPT, science was not included in these analyses.

## **Results**

*What was the mean and variation in the fidelity of CWPT implemented by teachers?*

A total of 75 procedural fidelity checks (34 in reading classes, 27 in social studies classes, and 14 in science classes, representing 80% of the classrooms), were completed during CWPT conditions across the 3-year study (see Table 2). Overall mean fidelity was 89.9% with classes ranging from 48% to 100%. Fidelity for reading averaged 85% with classes ranging from 48% to 96%. For social studies the mean was 95% with classes ranging from 89% to 98%; and for science, a mean of 96% and classes ranging from 92% to 98%.

**Table 2**  
**Percentage Procedural Fidelity Summarized Across Teachers**

Reading Classes				
Teacher	Year	Mean %	Standard Deviation	# of Probes
1	1	78	5.4	4
2	1	88	4.8	5
9	1	72	3.5	3
10	1	48	19.9	3
11	2	87	9.9	2
12	2	93	1.4	2
13	2	77	7.1	2
15	2	93	1.4	2
16	2	91	0.7	2
15	3	91	5.0	3
18	3	92	2.8	2
20	3	96	---	1
21	3	92	---	1
22	3	91	0.7	2
Mean fidelity = 84.9			Total # probes = 34	

(Table continued overleaf)

**Table 2 (continued)**  
**Percentage Procedural Fidelity Summarized Across Teachers**

Social Studies Classes				
Teacher	Year	Mean	Standard Deviation	# of Probes
4	1	89	5.2	6
5	1	96	5.1	5
2	2	97	4.3	6
23	3	98	1.7	10
Mean fidelity = 95			Total # probes = 27	
Science Classes				
Teacher	Year	Mean	Standard Deviation	# of Probes
6	1	92	3.5	2
24	3	97	3.9	5
25	3	96	3.8	7
Mean fidelity = 96			Total # probes = 14	

*Compared to teacher-led instruction baseline, was use of small group/peer tutoring, teacher scripted behaviors, and students' classroom behaviors during CWPT instruction changed and improved?*

Overall, use of peer tutoring and teacher and student behaviors were changed and improved as expected in each year of the study. Figures 1 and 2 present teacher behaviors and student behaviors for the 'target students' (those nominated as lower performing students by the teachers). Table 3 presents data for all the students in the classes (group on task). Small groups including peer tutoring dyads, considered more effective instructional arrangements than whole group, averaged 15.9% of reading sessions in baseline but increased to 75% of the sessions during reading CWPT, with similarly large increases during Years 2 and 3, and in social studies classes (e.g., baseline 5.1% vs. CWPT, 75% in Year 1). Teaching behaviors (i.e., actively instructing a lesson or listening to students respond, read to partner etc.) in baseline occurred at a high level 71% to 74% in reading and 52% to 75% in social studies with slight increases during CWPT conditions, ranging from 80% to 85%.



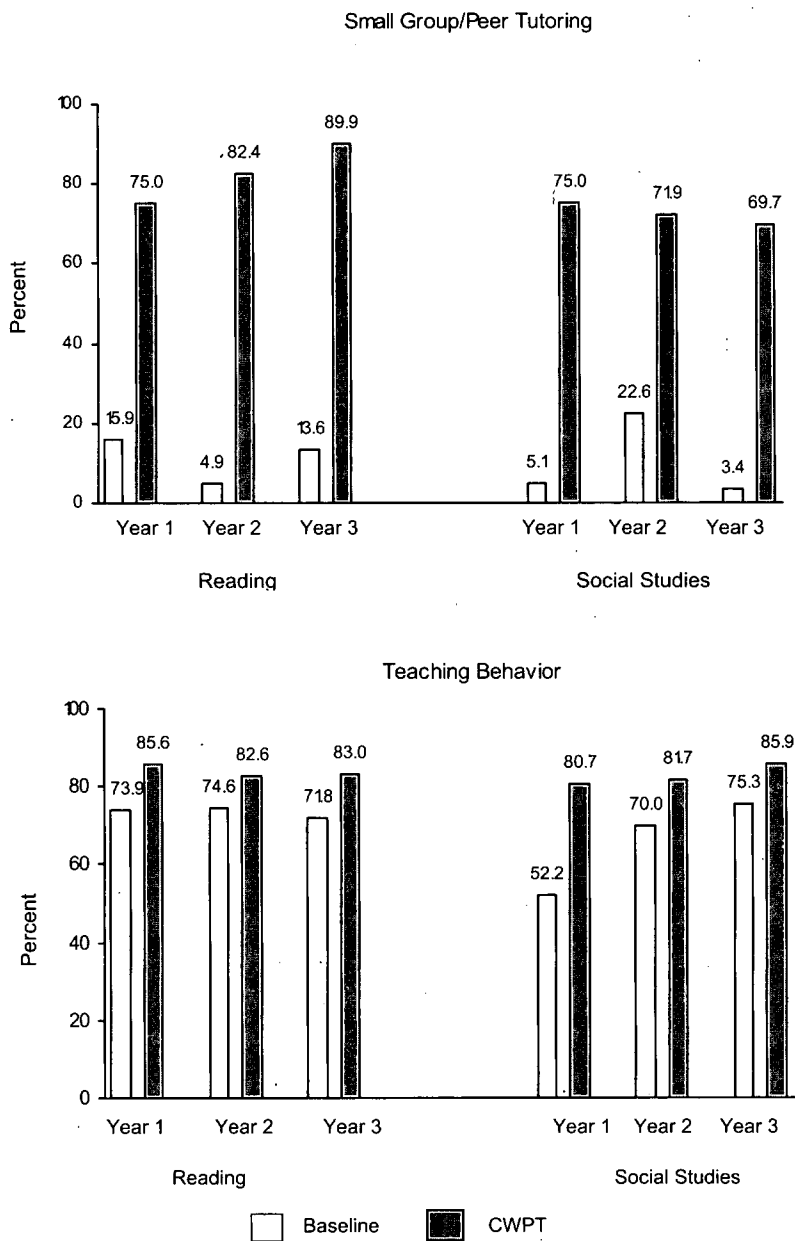


Figure 1. MS-CISSAR data: Percent of Intervals with Small Group/Peer Tutoring and Active Teaching Behavior across Baseline and CWPT/CWPT + Lottery Conditions over Years 1 to 3.

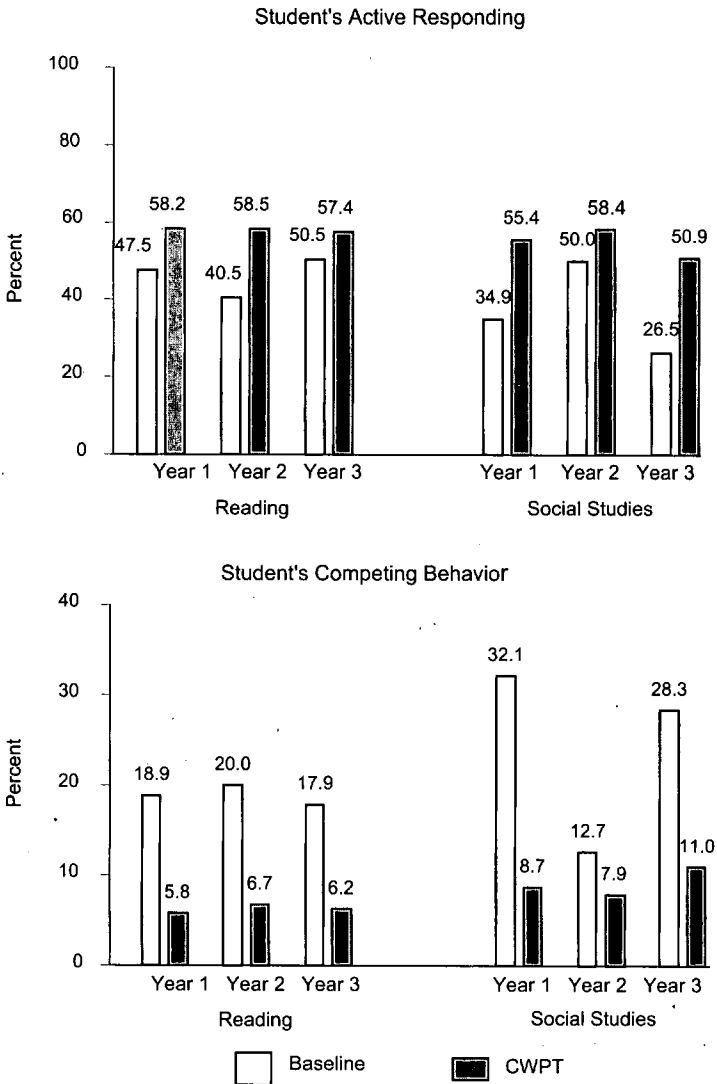


Figure 2. MS-CISSAR data: Percent of Sessions with Active Student Engagement and Competing Behaviors across Conditions over Years 1 to 3.

Active student behaviors (i.e., reading, writing, answering questions) averaged 40-47% of sessions during baseline reading with increases to 57% to 58% in CWPT (see Figure 2). Active student behaviors averaged 26% to 50% of social studies and science sessions in baseline, with increases to means of 50% to 58% during CWPT. Important decreases were noted in the disruptive behaviors of students as well with baseline levels at 17% to 32% of sessions across content areas and reductions during intervention to levels of 5% to 6% in reading and 7% to 11% in social studies and science classes.

On-task data (i.e., both passive and active learning) showed similar improvements during conditions of tutoring compared to baseline. As noted in Table 3, on-task averaged 62% in baseline and 80% during tutoring conditions for reading; 50% and 78%, respectively for social studies; and 57% and 79%, respectively for science classes.

*What was the mean and variation in middle school classroom effect sizes?*

The overall mean classroom effect size for improvement in weekly content accuracy was 1.11 (SD = 1.15) (see Table 4). With minor exception (range, -.39 to 4.13) representing moderate to large effects. Three of the five negative effect sizes were contributed by three classrooms taught by Teacher 11 whose students had the highest mean accuracy baseline levels ranging from 82 to 89%. These students were unchallenged by the material assigned for CWPT because of too high floor-ceiling effects in their instruction.

*Are significant differences in effect sizes in weekly accuracy observed between subject matter (Reading vs. Social Studies)?*

The test of differences in effect size by subject matter, reading ( $M = .95$ ) vs. social studies ( $M = 1.85$ ), was statistically significant,  $F(1, 42) = 5.85$ ,  $p = .020$  (see Table 5). Thus, the hypothesis of no differences between effects produced by CWPT across different subject matter was rejected.

*Are significant differences in effect sizes in weekly accuracy observed between urban vs. suburban classrooms?*

The hypothesis of no differences in CWPT effect sizes between students in urban vs. suburban classrooms was rejected,  $F(1, 42) = 6.41$ ,  $p = .015$  (see Table 4). Students in urban classrooms on average realized larger effect sizes ( $M = 1.58$ ) than suburban students ( $M = .74$ ). This result was explained by the fact that students in suburban classrooms had larger baseline means on weekly tests ( $M = 70.1$  suburban vs.  $M = 50.1$  urban) than did urban students; and thus, had less room to grow on the same tests during CWPT.

**Table 3**  
**Percentage On-task Summarized Across Teachers**

<b>Reading Classes</b>				
Teacher	Year	Mean Baseline %*	Mean CWPT %*	# of Probes
1	1	No data	87 (2.3)	6
2	1	81 (5.9)	93 (3.1)	10
11	2	40	79 (5.7)	3
12	2	59	70	2
13	2	30	58	2
16	2	64	70	2
15	3	67	92 (0.7)	3
18	3	73 (0.7)	93	3
20	3	69	No data	1
21	3	71	No data	1
		Mean on-task = 62%	Mean on-task = 80%	Total # probes = 33
<b>Social Studies Classes</b>				
Teacher	Year	Mean Baseline %*	Mean CWPT % *	# of Probes
4	1	45 (0.6)	71 (10.9)	12
5	1	41	73 (8.6)	6
2	2	65 (12.7)	91 (4.5)	8
		Mean on-task = 50%	Mean on-task = 78%	Total # probes = 26

\* numbers in parentheses = standard deviation when more than one probe in condition

**Table 3 (continued)**  
**Percentage On-task Summarized Across Teachers**

Science Classes				
Teacher	Year	Mean Baseline %*	Mean CWPT % *	# of Probes
6	1	72 (9.2)	83 (7.7)	8
24	3	42	75 (8.6)	6
		Mean on-task = 57%	Mean on-task = 79%	Total # probes = 14

\* numbers in parentheses = standard deviation when more than one probe in condition

**Discussion**

The use of CWPT at times combined with additional motivational and management procedures resulted in moderate to large effects for middle school students' improvements in learning of weekly reading and social studies content. This was not the case for science (see Table 4). Replicating a measurement model used in elementary school studies of CWPT that included measures of fidelity of intervention and direct, real time observations of changes in instructional arrangements, teacher behavior, and student behavior during instruction, these learning outcomes were strongly linked to the use of CWPT. Additionally, the use of single-subject designs at the classroom level provided support for the causal effects of CWPT compared to teacher-led instruction. Because analyses were targeted at the classroom rather than individual student level, the findings of this quasi-experimental study also provided strong evidence of the repeatability of CWPT interventions across teachers, classrooms, and years. These findings represent those to be expected in real-world urban and suburban classrooms where children with disabilities and who are English language learners are included.

Fidelity ratings were acceptable at 84.9% for reading and quite high at 95-96% for social studies and science, indicating that CWPT in middle school settings is a strategy that can be taught successfully to a variety of teachers. In two cases, however low averages of 48%, and 72% were scored for two of the special education teachers in the study. In both cases procedural variations appeared to be implemented to accommodate for students' preferences, and to maintain motivation. This suggests additional study is warranted for use of CWPT in middle school special education classes to determine suitable accommodations.

**Table 4**  
**Quiz Outcomes by Teacher/Classroom, School SES, and Subject Matter**

Teacher	# of classes	SES	Subject	Baseline		CWPT		Gain	Effect Size
				M	SD	M	SD		
1	2	Urban	Reading	47.0	18.8	71.3	15.8	24.2	1.29
2	3	Urban	Reading	60.6	16.6	73.9	15.3	13.3	0.80
3	1	Urban	Reading	74.0	26.3	92.0	14.2	18.0	0.68
7	1	Urban	Reading	33.0	20.5	65.0	21.2	32.0	1.56
8	1	Urban	Reading	62.0	15.3	69.0	15.9	7.0	0.46
10	1	Urban	Reading	37.0	11.9	76.0	9.0	39.0	3.28
18	1	Urban	Reading	65.0	13.0	86.0	9.7	21.0	1.62
19	1	Urban	Reading	49.0	16.8	85.0	8.9	36.0	2.14
20	1	Urban	Reading	55.0	12.4	70.0	9.9	15.0	1.21
21	1	Urban	Reading	52.0	17.0	67.0	13.8	15.0	0.88
22	2	Urban	Reading	74.5	11.7	83.1	8.8	8.5	0.73
23	2	Urban	Social Stud.	46.8	13.4	90.1	7.0	63.3	4.76
2	3	Urban	Social Stud.	63.7	17.0	72.4	15.9	9.0	0.53
4	3	Urban	Social Stud.	24.8	13.0	63.5	16.3	39.5	3.05
5	1	Urban	Social Stud.	34.0	16.5	67.0	23.9	33.0	2.00
6	3	Urban	Science	40.6	19.3	38.3	15.1	-2.3	-0.11
24	1	Urban	Science	57.0	23.0	67.0	16.6	10.0	0.43
25	1	Urban	Science	30.0	14.1	55.0	20.3	25.0	1.77

Table 4 (continued)

Teacher	# of classe	SES	Subject	Baseline		CWPT		Gain	Effect Size
				M	SD	M	SD		
11	4	Suburban	Reading	86.0	9.5	83.6	11.2	-2.4	-0.25
12	2	Suburban	Reading	58.2	16.2	79.0	14.9	20.8	1.31
13	4	Suburban	Reading	69.1	18.3	75.0	17.6	6.0	0.33
14	1	Suburban	Reading	35.0	10.9	80.0	14.9	45.0	4.13
15	2	Suburban	Reading	70.8	12.7	80.1	10.4	9.2	0.72
16	4	Suburban	Reading	61.9	16.4	75.6	14.7	13.6	0.82
17	3	Suburban	Social Stud.	78.9	13.4	89.4	9.2	10.1	0.76
Summary									
Urban		29		50.3	16.5	71.8	14.3	22.6	1.50
Suburban		20		65.7	13.9	80.4	13.3	14.6	1.12
Reading		32		58.2	15.5	77.2	13.3	18.9	1.28
Social Studies		12		49.6	14.7	76.5	14.5	31.0	2.22
Science		5		42.5	18.8	53.4	17.3	10.9	0.70
All		49		54.6	15.76	74.17	14.02	20.35	1.40

**Table 5**  
**CWPT Quiz Mean Effect Sizes by Subject Matter and School SES**

Subject Matter	Reading		Social Studies		<i>F</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
	0.95	1.00	1.85	1.33	5.847	1,42	0.020
School SES	Urban		Suburban		<i>F</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
	1.58	1.12	0.74	1.05	6.408	1,42	0.015

Additional analyses of the subpopulation effects of CWPT on students with disabilities and ELL were not conducted in this report, given the design and the goal of conducting analyses at the classroom level, rather than student level. Review of single-subject results however, indicated that effects were particularly strong for lower ability students. For example, while quiz scores improved for students in reading classes, oral reading rates only improved for students with low baseline levels.

Anecdotal findings were that CWPT was equally effective for ELL learners with additional accommodations (e.g., audiotapes of passages prior to peer tutoring, use of combined Spanish and English for vocabulary practice); and for special education students (e.g., smaller passages/units for study, oral tests, student choice of texts and partners).

While general findings were positive, some classroom instructional conditions indicated that CWPT intervention was unnecessary. Specifically, CWPT was not shown to be more effective than baseline for average and above average students in suburban classes when baseline instruction included a rich array of activity formats (writing, cooperative learning, comprehension-tasks). These findings suggested that the critical components of CWPT instruction were multiple opportunities to engage the content materials (e.g., flash cards, oral reading, and comprehension activities) and the resulting increased active student responding. When these components are already in place in existing classrooms, then an intervention such as CWPT may not be recommended. However, like CWPT research reports in elementary school classrooms, teachers who teach and test content not known by students in baseline, create conditions for larger weekly gains. For example, baseline class means of 40% correct or lower are recommended (Greenwood, Maheady, & Delquadri, 2002).



While CWPT effects were noteworthy for reading and social studies, findings were mixed for science classes. This finding was not explained by high baseline test scores. Students were clearly challenged and had room to master new content on these tests (see Table 4). A more likely explanation was the high readability level of the science texts used by some teachers to teach challenging content such as the nature of experimentation for which some students lacked essential background knowledge (Teacher 6). It is important to note, however, that only a few science classes participated across the experimental studies, and more research is needed in science.

Another finding supported by the single-subject CWPT was that when needed, the lottery motivation system was more effective than CWPT alone. This adds important information for use with secondary level students compared to elementary school experimental studies in which the points awarded for tutoring responses and the team competition have usually been sufficient to motivate participants (Greenwood et al., 1991). The only case in which the motivational component did not appear helpful was in either social studies or science when teachers were using texts with difficult readability for the majority of students.

### **Limitations and Recommendations for Future Research**

Some limitations were related to design, in that there was not a random assignment to the CWPT condition within buildings, as teachers were 'volunteers.' In addition, no measures of peer tutoring variables were collected during baseline to determine any contamination (i.e., use of intervention components). A limitation also is the limited reliability probes for class on task behavior and quiz scores, although reliability scores were high on grading quizzes. Other problems in the investigation were related to curriculum, scheduling, student and teacher motivation, and performance levels. Peer-tutoring formats were fairly easily arranged for reading and social studies content, but not for science. In the major participating district, the science curriculum was organized more to facilitate experiments and long-term lab activities, and less for learning vocabulary and factual content from expository texts. Negligible differences within this context were found during CWPT conditions. This was due to the structure, and partly because the text was extremely difficult with the majority of students unable to read the narrative. Recommendations would include use of CWPT formats as an intermittent support to learning more factual content.

A further limitation to the study is that middle school schedules, with 50-min class periods, were not as conducive to CWPT as

scheduling within elementary school settings. A primary issue was limited additional class time during sessions with a 35-min time span devoted to CWPT. To accommodate for tight schedules, teachers covered a section of materials over a 1 and ½ to 2 week period, thus allowing for a minimum of 3 CWPT sessions within the unit. When block scheduling was used, classes would meet either 2 or 3 times per week. Under those conditions CWPT was not possible during the normal daily routine unless a teacher's roster included the same group of students for 5 days a week for related coursework (e.g., reading and language arts). These problems were related to the school structure and willingness or flexibility of staff to accommodate students in need of additional practice routines such as CWPT to master content. In a few instances, issues stemmed from limited resources, such as cases in which there were not enough books for all the students in the class.

Other problems were related to students or teachers themselves, rather than the system. Interest level or motivation of urban middle school students was low in some cases, more so than in our experience in urban elementary schools (Kamps et al., 1994). Motivational problems very much seemed related to a history of academic failure, with many students reading far below grade level (e.g., average reading level at one school was 3<sup>rd</sup> to 4<sup>th</sup> grade level). Other issues appeared related to the age of the students, and social expectations (e.g., athletic skill, popularity) surpassing expectations for academic success. In addition, this age group was less likely to want a peer as a tutor, though they typically were satisfied when they served in a tutoring role. Clearly the advantage of the CWPT format is that all students serve as tutors. In a limited number of cases, teacher expectations for their students seemed low. Under these circumstances, classes appeared less structured with more behavior problems and less student adherence to academic diligence. These and other factors contributed to less social validity for the CWPT for students. Social validity averaged 70% approval, compared to elementary aged students with 80-90% approval (Kamps et al., 1994). Solutions for these issues included (a) use of after school tutoring programs, including use of CWPT within this forum, (b) use of school-wide incentive programs for attendance, performance, and appropriate behaviors, (c) use of student control to increase motivation (e.g., student choice in selection of tutoring activities, novels, reinforcement for lottery systems, and partners), and (d) adherence to point systems and incentives.

#### *Implications for Practice and Future Research*

This project addressed the literacy and advanced subject matter of middle school students with and without disabilities, including

urban, culturally and linguistically diverse groups, by utilizing and modifying the CWPT program (Greenwood, Delquadri, & Carta, 1997). The CWPT program was originally developed in response to the socio-cultural needs of poor, minority status group students enrolled in urban elementary schools. The objectives of the study were to investigate the use of CWPT procedures, to develop and implement procedures that combine the use of CWPT, self-management, and motivational components as a dual effective instructional arrangement, and to demonstrate effects using rigorous experimental designs.

The significance of the work for policy is based on prior validation and data-based support of CWPT in elementary schools as an effective instructional strategy for students at risk and with disabilities. A contribution was new findings of the benefits of the use of CWPT in middle school settings across reading and social studies content areas, with replication of the superiority of the procedure (to traditional teacher lead instruction) with this new population. These findings support prior research demonstrating the benefits of peer learning strategies for at risk secondary level students (Fuchs, Fuchs, Thompson et al., 2001; Spencer et al., 2003). A second contribution was new findings supporting the benefits of self-management (citizenship point system) and reinforcement procedures (lottery systems) in response to the critical need for effective discipline and positive behavior support for students in today's culturally and economically diverse schools (Mitchem et al., 2001). Overall, the study provided a greater understanding of the effects of CWPT procedures as an instructional strategy for older students, with and without mild disabilities, across middle school settings in urban poverty schools and suburban districts.

Related to practice, this work extended demonstrations of the instructional processes effective in teaching this population. Illustrated was the role that peer-mediation, peer teaching, and peer assistance contribute to learning, compared to teacher-led instruction (see results). According to Gersten and colleagues, "educational research has consistently shown that when well implemented, peer- and socially-mediated instruction (i.e., approaches such as classwide peer tutoring and reciprocal teaching, where students teach each other specific skills and strategies and the teacher facilitates) invariably leads to higher levels of student engagement and accelerates learning" (p. 250, Gersten, Lloyd, & Baker, 1998). The one-on-one peer teaching model in our studies (CWPT + lottery) using "explicit" teaching routines showed superior results in the majority of cases.

Future directions for research are experimental studies to (1) further develop and demonstrate the effectiveness of CWPT + lottery pro-

cedures with science and additional content areas, (2) demonstrate the use of peer tutoring as a small group instructional practice enabling partial class participation in addition to current findings for classwide use, (3) validate the use of study guides and/or written responses for CWPT + lottery procedures within reading classes, (4) enhance comprehension strategies within the CWPT format (e.g., including rotations of practice routines), (5) test for CWPT + lottery effects for larger numbers of students receiving special education services, (6) develop and enhance CWPT + lottery procedures to better serve average, above average students, and suburban school students, and (7) investigate maintenance and generalization following implementation of CWPT + lottery programs.

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### References

- Anderson, M., Beard, K., Delgado, B., Kea, C., Raymond, E., Singh, N., Sugai, G., Townsend, B., Voltz, D., & Webb-Johnson, G. (1998). *Working with culturally and linguistically diverse children, youth, and their families: Promising practices in assessment, instruction and personnel preparation, A White Paper by the Multicultural Concerns Task Force Council for Children with Behavior Disorders*. Reston, VA: CCBD, a Division of the Council for Exceptional Children, 1920 Association Drive, 22091, (703) 620-3660.
- Bell, K., Young, K. R., Blair, M., & Nelson, R (1990). Facilitating Mainstreaming of students with behavioral disorders using classwide tutoring. *School Psychology Review*, 19, 564-573.
- Benyo, J., Mitchem, K., Young, K. R., & West, R. P. (1998, November). *The PAL game: A classwide peer-assisted self-management program to improve on-task behavior and appropriate use of social skills with secondary students*. Presented at the 22<sup>nd</sup> Annual TECBD Conference in Scottsdale, AZ.
- Carpenter, S. L., & McGee-Higgins, E. (1996). Behavior management in inclusive classrooms. *Remedial and Special Education*, 17(4), 195-203,

- Colvin, G., Kameenui, E. J., Sugai, C. (1993). Reconceptualizing behavior management and school-wide discipline in general education. *Education and Treatment of Children, 16*, 361-381.
- Flood, J., & Anders, P. (2005). *Literacy development of students in urban schools: Research and policy*. Newark, DE: International Reading Association.
- Fuchs, L., Fuchs, D., & Kazdan, S. (1999). Effects of peer-assisted learning strategies on highschool students with serious reading problems. *Remedial and Special Education, 20*, 309-318.
- Fuchs, D., Fuchs, L. S., Thompson, A., Svenson, E., Yen, L., Otiaba, S., Yang, K.,
- McMaster K., Prentice, K., Kazdan, S., & Saenz, L (2001). Peer-assisted learning strategies in reading: Extensions for kindergarten, first grade and high school. *Remedial and Special Education, 22*, 15-21.
- Gansle, K. A. & McMahon, C. M. (1997). Component integrity of teacher intervention management behavior using a student self-monitoring treatment: An experimental analysis. *Journal of Behavioral Education, 7*(4), 405-419.
- Gersten, R., Lloyd, J.W., & Baker, S. (1998). *Designing high quality research in special education: Group experimental designs*. Eugene OR: University of Oregon and the Eugene Research Institute.
- Greenwood, C. R. (1991). Classwide peer tutoring: Longitudinal effects on the reading, language, and mathematics achievement of at risk students. *Reading, Writing, and Learning Disabilities Journal International, 7*, 105-123.
- Greenwood, C. R. (1996). Research on the practices and behavior of the effective teachers at the Juniper Gardens Children's Project: Implications for diverse learners. In D.L. Speece & B. K. Keogh (Eds.), *Research on classroom ecologies; Implications for inclusion of children with learning disabilities* (pp 39-68). Mahwah, NJ: Erlbaum.
- Greenwood, C. R., Maheady, L., & Delquadri, J. (2002). ClassWide Peer Tutoring. In M. R. Shinn, H. M. Walker & G. Stoner (Eds.), *Interventions for achievement and behavior problems* (2nd Ed., pp. 611-649). Washington, DC: National Association for School Psychologists (NASP).
- Greenwood, C. R., Terry, B., Utley, C., Montagna, D., & Walker, D.. (1993). Achievement, placement, and services: Middle school benefits of Classwide Peer Tutoring used at the elementary school. *School Psychology Review, 22*(3), 497-516.

- Greenwood, C. R., Carta, J., Kamps, D., Terry, B., & Delquadri, J. (1994). Development and validation of standard classroom observation systems for school practitioners: Ecobehavioral assessment systems software (EBASS). *Exceptional Children, 61*, 197-210.
- Greenwood, C.R., Delquadri, J., & Carta, J., (1997). *Together we can: Classwide Peer Tutoring for basics academic skills*. Longmont, CO: Sopris West.
- Kamps, D., Barbetta, P., Leonard, B., Delquadri, J., & Hall, R.V. (1994). Classwide peer tutoring: An integration strategy to improve and promote peer interaction among students with autism and general education peers. *Journal of Applied Behavior Analysis, 1*(4), 367-397.
- Hannaway, J. (2005). Poverty and student achievement: A hopeful review. In J. Flood and P. Anders (Eds.), *Literacy development of students in urban schools: Research and policy* (pp. 3-21). Newark, DE: International Reading Association.
- Harris, R., Marchand-Martella, N., & Martella, R. (2000). Effects of a peer-delivered corrective reading program. *Journal of Behavioral Education, 10*(1), 21-36.
- Kamps, D., Leonard, B., Potucek, J., & Garrison-Harrell, L., (1995). Cooperative learning groups in reading: In integration strategy for students with autism and general classroom peers. *Behavioral Disorders, 21*, 89-109.
- Kennedy, C. (2005). *Single-Case Designs for Educational Research*. Allyn and Bacon, Boston.
- Kern, L., Dunlap, G., Childs, K. E., & Clarke, S. (1994). Use of a classwide self-management program to improve the behavior of students with emotional and behavioral disorders. *Education and Treatment of Children, 17*, 445-458.
- Maag, J. W., Reid, R., & DiGangi, S.A. (1993). Differential effects of self monitoring: Attention, accuracy, and productivity. *Journal of Applied Behavior Analysis, 12*, 329-342.
- Maheady, L., Sacca, M., & Harper, G. (1988). The effects of a classwide peer tutoring program on the academic performance of students enrolled in 10<sup>th</sup> grade social studies. *Exceptional Children, 53*, 52-59.
- Mastropieri, M., Scruggs, T., Spencer, V., & Fontana, J. (2003). Promoting success in high school world history: Peer tutoring versus guided notes. *Learning Disabilities Research & Practice, 18*, 52-65.

- Mastropieri, M., Scruggs, T., Mohler, L., Beranek, M., Spencer, V., Boon, R., & Talbott, E. (2001). Can middle school students with serious reading difficulties help each other and learn anything? *Learning Disabilities Research & Practice, 16*, 18-27.
- Mayer, C., Utley, C., Perdomo-Rivera, C., & Greenwood, C. (2003). Ecobehavioral assessment of instructional contexts in bilingual special education programs for English language learners at risk for developmental disabilities, *Focus on Autism and Other Developmental Disabilities, 15*, 28-40.
- McDougall, D., & Brady, M. P. (1998). Initiating and fading self-management interventions to increase math fluency in general education classes. *Exceptional Children, 64*(2), 151-166.
- Mitchem, K. J., Young, K. R., West, R. P., & Benyo, J. (2001). CWPASM: A Classwide peer-assisted self-management program for general education classrooms. *Education and Treatment of Children, 24*(2), 111-140.
- National Assessment of Education Progress (NAEP), (2003). 12th grade report card: Math and reading. Washington, DC: U. S. Department of Education
- Rohrbeck, C. A., Ginsberg-Block, M. D., Fantuzzo, J. W., & Miller, T. R. (2003). Peer-assisted learning interventions with elementary school students: A meta-analytic review. *Journal of Educational Psychology, 95*(2), 240-257.
- Salend, S. J., Whittaker, C.R., & Reeder, E. (1992). Group evaluation: A collaborative, peer-mediated behavior program system. *Exceptional Children, 59*(3), 203-209.
- Scruggs, T., Mastropieri, M. A., & Richter, L. (1985). Peer tutoring with behaviorally disordered students: Social and academic benefits. *Behavioral Disorders, 12*, 283-294.
- Shadish, W., Cook, T., & Campbell, D. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin, Co: Boston.
- Smith, D. J., Young, K. R., Nelson, N. R., & West, R. P. (1992). The effects of a self-management procedure on the classroom and academic behavior of students with mild handicaps. *School Psychology Review, 21*(1), 59-72.
- Spencer, V. G., Scruggs, T. E., & Mastropieri M. A.. (2003). Content area learning in middle school social studies classrooms and students with emotional or behavioral disorders: A comparison of studies. *Behavioral Disorders, 28*, 77-93

- U.S. Department of Education (1997). *To assure the free appropriate public education of all children with disabilities. Nineteenth annual report to Congress on the implementation of the individuals with disabilities education act.* Washington, DC: Author.
- Utley, C. A., Mortweet, S. L., & Greenwood, C. R. (1997). *Peer-mediated instruction and interventions. Focus on Exceptional Children.* Denver, CO: Love Publishing.
- Utley, C. A., Obiakor, F. E., & Kozleski, E. (2005). Overrepresentation of culturally and linguistically diverse students in special education in urban schools: A research synthesis. In J. Flood & P. Anders (Eds.). *Literacy development of students in urban schools: Research and policy* (pp. 314-344). Newark, DE: International Reading Assn.
- Young, K. R., West, R. P., Smith, D. J., & Morgan, D. (1991). *Teaching self-management strategies to adolescents.* Longmont, CO: Sopris West.

## Appendix: Sample Quiz

Name \_\_\_\_\_

### Roll of Thunder Post Test, Chapters 3-4

#### Matching

Write the letter of the definition which best matches each word.

- |                       |   |
|-----------------------|---|
| _____ 1. resiliency   | A. done in secret, not noticed              |
| _____ 2. stealthily   | B. ability to recover from stress or change |
| _____ 3. inaccessible | C. to think or brag with selfishness        |
| _____ 4. emitted      | D. to give off, send out, to express        |
| _____ 5. gloat        | E. unable to reach or obtain                |

#### Comprehension

Write a short answer to each question, or choose all answers that apply. Your answers should be in complete sentences.

1. Why do the Logan's have a negative attitude toward the school bus?

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2. Who is TJ?
- A friend of the Wallaces
  - A friend of Stacey
  - A boy who cheats
  - Stacey's grandfather
3. What was TJ doing in Mama's room?
- 
- 
4. What happened to Mr. Berry?
- 
- 
5. Why did Stacey have cheat notes?
- He didn't study and was using them to cheat on the test.
  - He got them from his Mama's room to help TJ cheat.
  - TJ gave them to Stacey so he wouldn't get caught.
  - Little Willie gave them to Stacey.
6. What caused the bus accident?
- 
- 
7. Why can't the Wallaces be trusted?
- 
- 
8. Why did Mama take the children to see Mr. Berry?
- 
- 
9. Why did Mr. Avery visit the Logan family?
- He wanted to warn the family of night riders.
  - He wanted to protect them from the Ku Klux Klan.
  - He wanted to apologize for TJ's behavior.
  - He wanted some of Mama's good cooking.

10. Why did Stacey at first resent Mr. Morrison living with them?

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Vocabulary Sentences: Use the best word from your vocabulary list to complete the sentences.

resiliency    inaccessible    embittered    conspiratorially    oblivious  
 gloat    emitted    humiliation    relent    stealthily    defiantly  
 engrossed

1. To have one's self respect or pride hurt is to feel \_\_\_\_\_.
2. The girl felt \_\_\_\_\_ and angry about accepting the situation.
3. \_\_\_\_\_ making a plan to do something illegal or wrong is very risky.
4. The students were \_\_\_\_\_ in the close score of the basketball game.
5. The boys \_\_\_\_\_ ignored the teacher's request to do their work.

Bonus: Read these sentences from Roll of Thunder. Choose the best word from your vocabulary list to complete the sentences.

1. When we reached the crossroads, he looked hopefully at us as if we might \_\_\_\_\_ and say goodbye.
2. For once in his life, Little Man was happily \_\_\_\_\_ to the mud splattering on him.
3. Each day the man found his clean clothes splashed red by the school bus, he became more and more \_\_\_\_\_ until finally one day he stomped angrily into the kitchen and exploded.



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